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Record of Prehistoric Industry in Tabular Flint

at

Brambridge and Highfield, near Southampton.

With a Chapter of Explanatory Notes by
Dr. ROBERT MUNRO, M.A., M.D., LL.D.

By
R. E. NICHOLAS, F.L.S., F.G.S.,
Hon. Curator of the County Historical and Antiquarian Museum at Tudor House, Southampton, and of the Various Ancient Buildings and Places of Interest belonging to the County Borough Council.

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PUBLISHED BY
TOOGOOD & SONS,
Seedsmen to H.M. The King, to H.M. The late King Edward, and for 50 years to H.M. The late Queen Victoria,
SOUTHAMPTON.

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BRAMBRIDGE SITE. PLATE I.

For description, see page 16.

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WRITER'S ACKNOWLEDGMENTS.

Such small measure of usefulness or of interest as may be found by some in the following pages is due to the generous help of the kindly persons whose names follow.

Dr. Robert Munro, M.A., M.D., LL.D., most distinguished of living British archæologists and anthropologists, and author of " Palæolithic Man and Terramara Settlements in Europe " and of many other standard works on prehistoric archæology, who kindly read this pamphlet in proof and also wrote the brief critique of the data which is included.

Colonel C. F. Close, C.M.G., R.E., Director-General of the Ordnance Surveys, who was good enough to have the sites planned by Mr. S. J. Gooch, an expert of his staff.

Mr. W. H. Killick, Deputy Borough Engineer and Surveyor of Southampton, who not only drew the sections and plans which bear his name, but also photographed to scale all the objects illustrated.

Mr. Charles Cooksey, of Southampton, the Rev. Father Walter Cooksey, of Bromley, Kent, and Dr. A. J. Knowlton, of Southampton, who expressed sustained and encouraging interest in the prehistoric remains found. Incidentally, it is largely due to the insistence of the Messrs. Cooksey that this record is published in pamphlet form.

Mr. Joseph Waterhouse, gravel contractor and digger, of Southampton, who fortunately possesses an excellent practical knowledge of prehistoric flint tools, and who, at the Highfield site, spared no trouble to facilitate the work of collecting and recording specimens.

Miss Gertrude Chard, of the Art Staff of the Southampton University College, who has patiently and skilfully portrayed the relics used for purposes of illustration. To ensure absolute accuracy, these were first photographed of the required size, their outlines and principal flakings being then actually traced from the photographic prints.

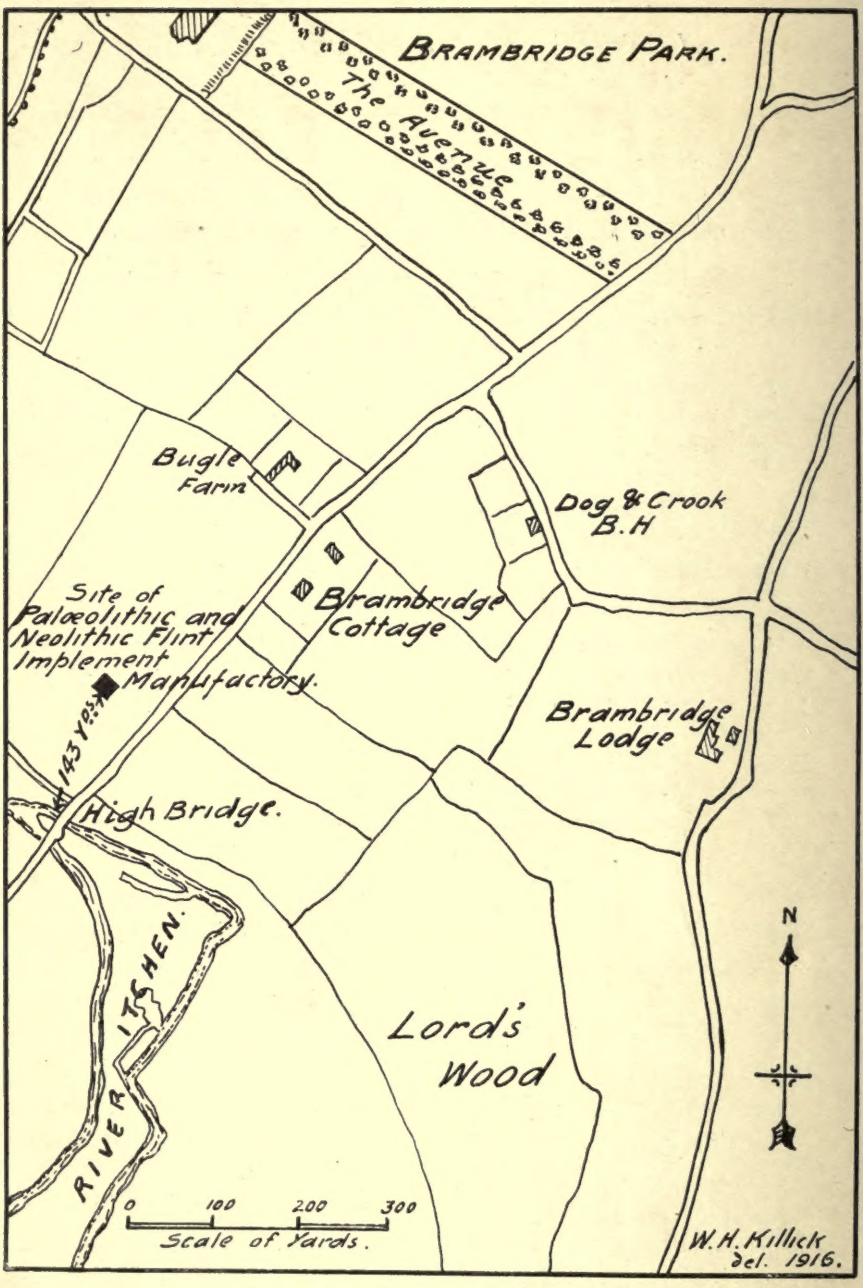


Fig. 1. SITUATION OF THE BRAMBRIDGE SITE.
Drawn from a Plan kindly made by the Ordnance Surveys.

A PREHISTORIC INDUSTRY IN TABULAR FLINT AT BRAMBRIDGE, NEAR EASTLEIGH, SOUTHAMPTON.

THE SITE.

The area of prehistoric land-surface or Floor strewn with flint-workshop débris was of irregular contour and of approximately 500 to 600 square yards extent. Situated, as shown in Fig. 1, 143 yards from the bank of the existing Itchen, it lay only 6 feet above the present level of this River.

The finding of a few small and geometrically shaped blanks or implement-forms of tabular flint exposed on the soil-surface, suggested the digging of a small trial-hole on the site in 1914, so that the existence of the Floor was discovered then, though opportunity to make an exhaustive examination of it occurred only in the late summer and autumn of 1915, when the underlying gravel was required for Military Camps in the district.

THE DEPOSITS OR LAYERS.

A sectional drawing of the various surface-deposits of the site is given in Fig. 2; and the distinguishing numbers used in the following detailed descriptions to denominate the respective deposits, refer to the corresponding numbers in the diagram.

Deposit No. 1.—The surface-soil, a calcareous loam, from 6 to 9 inches in depth, contained many fine flint implements and very numerous geometrically shaped, small and medium

sized blanks of tabular flint, as well as flint cores, flakes, chips, etc. The presence of polished objects and of a barbed and tanged arrow-point of flint in this layer, was strong presumptive evidence of Neolithic date.

Deposit No. 2.—Immediately beneath the surface-soil and above the gravel lay from 2 to 3 inches depth of marl, varying in character from sandy to clay marl, and containing a small proportion of fine gravel. This deposit held some beautifully finished flint tools, many partly made implements (including some spoiled in the making), countless flakes and chips, many cores with numerous facets, and some hammer-stones and pot-boilers, besides a great number of large, medium sized and small, geometrically shaped blanks of tabular flint. Here and there, generally close to the apparent boundaries of the Floor, were found extensive heaps of flakes and chips, some of the latter being quite minute while others were large, geometrically formed chippings, like No. 4, Plate V, seemingly struck off in finally shaping the blanks.

The Pockets.—Marl had washed into and helped to fill pockets in the gravel. These bowl-shaped pockets, of which

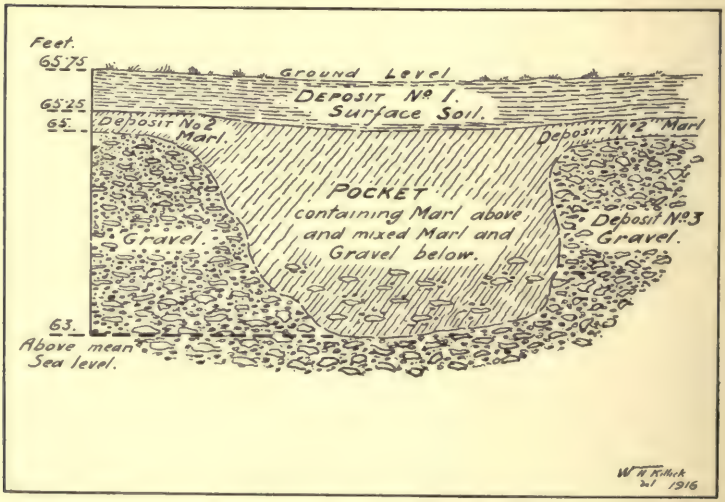


Fig. 2. SURFACE DEPOSITS OF THE BRAMBRIDGE SITE.

9 were observed, stood out boldly against the face of the gravel owing to their lighter-coloured filling; and closely resembled one another in conformation. They varied in size within limits of from 3 to 4 feet in diameter and from 1 to 2 feet in depth; and all occurred near the middle of the Floor and within an area of about 144 square yards. Their upper parts were filled with marl, while their lower portions contained marl mixed with a considerable quantity of small, shingly gravel, the proportions of the gravel increasing with the respective depths of the pockets, which also held numbers of finely shaped, geometrically formed tabular flint blanks of large, medium and small sizes, a few completed implements, and great quantities of workshop débris similar to that found in the marl-layer already described. Six large flint implements and four heavy, well shaped blanks of nodular flint found near the base of three of the deeper pockets were either of Palæolithic origin or so closely simulated, excepting in colour of patination, common Drift types as to be indistinguishable from them.

The general appearance of the pockets, their uniformity of shape, and the fact that 5 out of the 9 were noticed to contain large, burnt flints, lend colour to a supposition that they were originally hut-circles. On the other hand, none of them contained an observable culture-layer of dark-coloured material; and all appeared too small to have been reasonably well adapted for living-places.

Practically all the artificially produced objects of flint, including the geometrically shaped blanks of tabular flint, discovered on the site were perfectly free from abrasion, their edges being still just as sharp as when the chipping was done. In a few specimens the patina had slightly softened and decayed at the edges.

Deposit No. 3.—The gravel, of Quaternary deposition and of shingly character, was removed to a depth of 5 feet in clearing the site to the level of the adjoining highway. The face of this layer showed near its surface thin, horizontally stratified bands of marl and small shingle, and lower down a bed of

flint-pebbles and waterworn, sub-angular flints in a matrix of sandy clay, the whole combined into a hard, concrete-like mass by infiltration of calcareous matter. The layer of gravel extended without break to the bank of the existing River Itchen, and was doubtless part of the bed of the ancient and torrential river.

It should be mentioned that the gravel contiguous to the Floor yielded at various depths from 6 inches to 5 feet brownish-ochreous flint implements of ordinary Drift types, but so much rolled that the chipping was almost obliterated. In process, too, of removing the gravel of an area distant about 80 to 100 yards from the Floor at least 50 large blanks of tabular flint, a less number well formed of nodular flint, and 7 typical Palæolithic implements came to light. From their exceedingly worn and abraded condition it was evident these objects must also have been transported from some distance.

THE FLINT.

The tabular flint used for manufacture into implements on this site is mostly quite black inside, though some is brown; and was obviously selected with care and judgment as being specially adapted for the purpose in view. It is pure, free from chert, holes and cracks, and has a remarkably regular fracture. Whatever its thickness, too, and this varies from $\frac{1}{8}$-inch to 2 inches in different specimens, the two original, crusted surface-planes of any piece are generally smooth and parallel to one another. The flint was evidently brought here to be chipped into finished implements, probably from some as yet undiscovered prehistoric flint-mine in the chalk of the neighbouring districts. No tabular flint, other than geometrically formed blanks and more or less geometrical chips, was found on the site or in its vicinity.

THE FLINT BLANKS.

With the exception of the four heavy, blocked-out shapes of nodular flint mentioned in paragraph 1, page 7, all the blanks or implement-shapes discovered on the Floor were of

tabular flint. They affected in outline various geometrical forms, particularly trapezium, rhomboid and triangle ; and some of them were shaped with almost as much precision as if they had been cut out of wood with modern edged tools. Their range in size extended from specimens no larger than small arrow-points to others that were 8 inches long and 7 inches wide.

That no record of a previous discovery of similar blanks was known to the experts of the British Museum, who would doubtless be informed if such exist, seems clear from the fact that on 15th April, 1915, when implement-shapes of the type under consideration were being found at the Highfield site to be later described, the Department of British and Mediæval Antiquities and Ethnography of that Institution wrote :

> "Caches of blank flints have been found in the United States, but never in this country to my knowledge. The blanks you have drawn are quite impossible."

Later in the year Sir C. Hercules Read, Keeper of the Department, with characteristic kindliness and courtesy, inspected some of the blanks from both sites. He frankly said he had never seen anything of the kind before, adding justly that his official position obliged him to view with scientific scepticism any discovery which by reason of its novelty conflicted with already established experience and opinion. He was unprepared to either admit that the blanks showed any signs of human handiwork or to deny that they were wholly the work of Man's hands. He would regard them as being, as it were, on probation, in the hope that additional finds might throw further light upon their origin and use.

These blanks were present in thousands on the site. Considerably over half a ton of them was taken to Southampton ; and it would have been an easy matter to have collected several times as many. The flint of which they were composed must have come from some distance away, as the gravel did not contain any tabular flint, nor is any known to exist in the immediate neighbourhood. The general character of the flint-

workshop débris found on the site seemed to clearly indicate that the roughing out or coarser shaping of the blanks was done elsewhere, perhaps by the actual miners at the place where the flint was taken from the chalk, and so would be most easily worked. In other words, the blanks used as raw material appeared to have been carried to the manufactory in conveniently shaped geometrical forms, and not in the more or less irregular slabs one would expect to obtain from the seams. The perfect sharpness of their edges precludes the possibility of their having been deposited by natural agencies where they were found.

The numerous blanks left partly fashioned into implements are incontestable evidence that, however originally produced, they were used by prehistoric Man at this site as material from which to make the flint tools he needed for his social life and activities.

The question as to whether the blanks were shaped by human agency or were naturally fractured pieces of tabular flint is important, since proof that they were designedly chipped to the characteristic shapes would be a quite interesting addition to knowledge of what appears to be a well organised prehistoric industry so unfamiliar as yet that it does not even possess a name.

Evidence supporting the hypothesis that the blanks were intentionally made is, for the sake of convenience and lucidity, considered under the several specific headings following.

1.—Evidence of Shapes of Blanks.—The various typical shapes of the blanks were definite and purposeful. They were not those commonly found in naturally fractured pieces of tabular flint, but were such as adapted the blanks for being made into tools with relatively little labour. Some of them, for instance, resembled arrow-points so closely in outline as to practically leave only the chipping of the faces to be done in order to finish the implements. The fortuitous breaking of a slab of tabular flint into so very unusual a form as that of a well shaped arrow-point is, under the laws of chance, conceivable; but that so many pieces should naturally assume this surprising

and convenient form in a district as to permit of either prehistoric or modern Man collecting sufficient specimens to serve as ready made blanks for a flint arrow-point industry, seems exceedingly unlikely. It may be urged that, if one such blank could be produced naturally, an unlimited number might be made under like conditions by natural means: but this argument ignores the principle of probability. Were flint to anywhere naturally fracture into a shape so peculiarly suggestive, the fact could hardly have escaped the notice of geologists and archæologists. When, then, numerous specimens, not of one exceptional form, but of many forms as exceptional and as obviously useful to prehistoric Man as the arrow-point blanks instanced, are found in one place, the possibility of their having been produced by natural agencies becomes so remote as to be negligible.

2.—Evidence of Ratio of Thickness to Size in Blanks.—Attention has been drawn already to the fact that the flint of which the blanks were made was chosen with excellent judgment; and its thickness was found to generally increase so uniformly with the increase in size of the blank as to suggest that intelligent discrimination had been exercised in this direction also.

3.—Evidence of Blanks in Process of Shaping.—Many blanks with their geometrical outlines not quite completed were found. Nos. 1, 2 and 5, Plate V, show three examples finished excepting at their tops, where the chipping away of the superfluous flint extends, on the average, half way through their thicknesses. A single instance of this kind might be accidental; but the element of chance disappears when, as in this case, numerous specimens are found together.

4.—Evidence of Economy in the Use of Flint.—Evidence of this character is definite proof of the artificial shaping of such blanks as unquestionably exhibit it. It did not occur at the Brambridge site, where the prehistoric artificers evidently had access to good seams of suitable flint, but only—far removed from the chalk district—at the Highfield site, where, in consequence of the scarcity of raw material, it must have been highly

necessary to make the most and best possible use of every available piece of tabular flint. Even though it relate to Highfield blanks only, evidence of this nature bears so importantly upon the question of the artificial manufacture of prehistoric, geometrically formed blanks of tabular flint, wherever they be found, as to justify its consideration here. The nature of the economy practised in the use of flint is most conveniently explained pictorially.

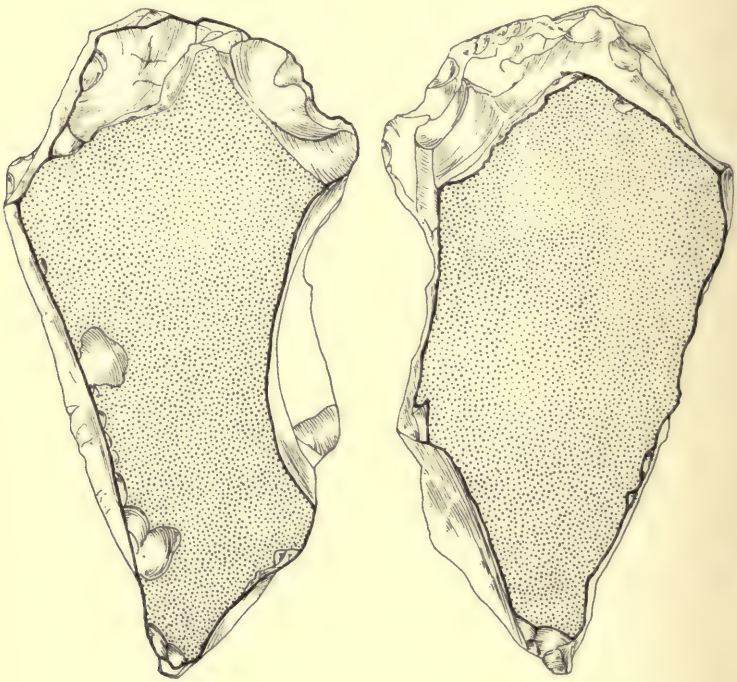


Fig 3. ECONOMY IN THE USE OF FLINT.

Fig. 3 represents both faces of a tabular flint blank, one inch in thickness throughout, and still showing on each much of its natural crust or outside. The originally designed, geometrical form was evidently ruined by the accident of a misdirected blow or a flaw in the flint producing the curved fracture seen in

illustration No. 1. Instead of throwing the spoiled blank away, and so wasting material that was scarce in the district and correspondingly valuable, the prehistoric craftsman, as will be seen from illustration No. 2, commenced to chip out on the opposite face another and a smaller, geometrically formed implement-blank, the outline of which is carefully arranged not to impinge on the chance fracture. The chipping has proceeded to a depth of $\frac{1}{5}$-inch through the thickness of the flint: and the peculiar conditions of the finding of this particular object, as described on page 86, make it entirely reasonable to assume that the work would have been finished later, had not something quite unforeseen by the worker happened to prevent it.

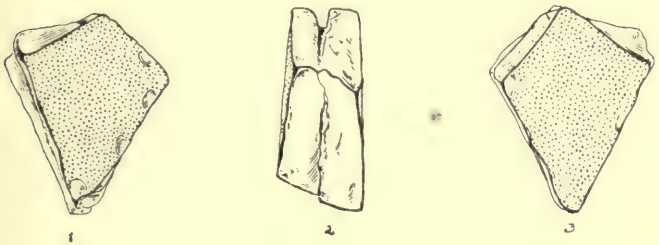


Fig. 4. ECONOMY IN THE USE OF FLINT.

Many small pieces of tabular flint found at the Highfield site were relatively thick in proportion to their sizes, and had on their opposite faces differently sized and shaped geometrical forms, the evident intention of the makers having been to split every such object into two separate and thinner blanks. Fig. 4 shows both faces and a side view of a typical specimen, $\frac{1}{2}$-inch in thickness, of this kind. Its two face-blanks are of trapezium form, but differ from one another slightly in detail of shape and markedly in size. It will be seen from illustration No. 2 that in this case, as in several others discovered, a shallow groove is situated at one end of the double-blank in the direction of the median line of its thickness: and the character and position of this groove suggest that it was intentionally "picked" out by means of a flint point, in order to facilitate accurate splitting of the stone into two parts. In addition to completed and partly

made double-blanks of the type described, many of the geometrical halves resulting from their cleavage came to light. The most remarkable of the double-blanks had respectively a trapezium and an isosceles triangle set directly across one another on its two faces, the outline of each form extending in length well beyond the limit of width of the other.

THE FLINT IMPLEMENTS.

Illustrations of a selection of objects of flint, including finished implements, characteristic of the site, and typical of the industry there conducted by prehistoric Man, are furnished in their apparent sequence by Plates III to XIX inclusive : and for convenience of reference the descriptions, purposely made as brief as seemed permissible, of the figured specimens appear on the pages respectively adjoining these Plates.

To keep the record within reasonable limits of cost and size, only one face of every selected specimen is pictured : but for reasons that will become clear when the Plates are examined in connection with the text, the omission of side and sectional views of the objects is of trifling consequence.

PATINATION OF THE CHIPPED SURFACES.

The chipped surfaces of implements and other objects of flint from the surface-soil (Deposit No. 1) of this site had generally a curious bluish patination, and were, with rare exceptions, lustrous. A few were dead white in colour. Some, of brown and black flint, were little changed saving that the brown examples were spotted and splashed with white, as though with whitewash, and that the black specimens assumed a bluish tinge on drying. Most were lustrous ; and many were stained with iron-mould, probably attributable to agricultural implements.

Those from the marl layer (Deposit No. 2), including the pockets, were usually of a pretty bluish white, frequently

mottled, and sometimes tinged creamy yellow, or else pure white ; and practically all had glossy surfaces. The chipped edges of most of the blanks resembled white enamel or porcelain.

Many objects patinated blue when uncovered turned white on exposure : and some interesting examples of two-sided patination occurred, the upper face being white or creamy-white and the lower one brownish black.

The colour of the patinated surfaces of specimens figured in the Plates is, to avoid needless repetition, only mentioned in the detailed descriptions of the objects when it seems to be of material importance.

No re-chipped tools were found on the site.

OBJECTS OF CONJECTURAL RELIGIOUS SIGNIFICANCE.

Whether viewed suppositively as definite traces of the dawn of the religious conception in Mankind or merely regarded as examples of the Stone Age sculptor's primitive art, the two objects of flint photographically reproduced in Plates I and II respectively, are perhaps by far the most interesting of all the things that came to light.

OBJECTS OTHER THAN OF FLINT.

Neither metal nor tools of bone were found, nor was any pottery discovered saving in the surface-soil small fragments of thin, blackish, hand-made ware, of coarse texture. Both the surface soil and marl layer contained a few bones in too fragmentary condition for identification and a number of molar horse-teeth, which, judging from their well defined constriction at the gum, were the temporary or "milk" teeth of quite young animals.

Considering their close proximity to the surface, it would appear to be inadvisable to attach much importance to these teeth.

BRAMBRIDGE SITE.

DESCRIPTION OF SPECIMEN IN PLATE I.

From base of Deposit No. 2. *Depth* 1 *foot. Figured* ¾*-lineal size.*

A flint nodule, photographed from front, back and both sides, and ornamented with three deeply chipped grooves that were probably produced by careful "picking" with a pointed flint or other sharp implement. The original crust or outside of the flint is intact excepting at the grooves. The natural shape of the stone curiously simulates the Phallic emblem ; and it is not unreasonable to assume that this resemblance would be apparent also to the primitive people whose artistic skill found expression in fashioning some of the beautiful flint-implements discovered in close proximity to it.

The method of decoration adds nothing to the chance similitude already mentioned, but rather detracts from it, so that the craftsman's reason for displaying his art upon this particular medium is not obvious excepting on the assumption that the object possessed for him some magical significance or superstitious virtue.

That no similar Stone Age relic has been previously recorded may result quite simply from others having been overlooked. It was only the earlier discovery of a much larger but unchipped flint nodule, showing an astonishing anatomical likeness to the Phallus, that led to the relic now under consideration being examined, and so to the finding of the artificially made grooves, which were then so filled with fine gravel and sand, cemented by calcareous infiltration, as to be practically indistinguishable.

The stone appeared so impressive in its suggestiveness that it was sent to the Department of British and Mediæval Antiquities and Ethnography of the British Museum, the reply received from Mr. Reginald A. Smith, B.A., F.S.A., being as follows :

"The specimen returned herewith is in my opinion

BRAMBRIDGE SITE. PLATE II.

For description, see page 18.

purely natural, due to the unequal hardness of the various layers in the flint, and it would be difficult to prove it is what you take it for. I should be glad to see anything really exceptional if you would care to send it up."

The somewhat disconcerting character of the last sentence of this gentleman's letter quoted here, made it desirable to submit the question of how the grooves were produced to the ultimate arbitrament of Geological Science, since none but the expert geologist, habitually familiar with the fantastic effects upon flint of weathering, petrification, natural chipping by pressure, etc., can decide authoritatively whether the grooves are or are not the work of Man's hands. The object was accordingly forwarded to the Geological Society, whose decision, written by Dr. A. Smith Woodward, LL.D., F.R.S., President of the Geological Society and Keeper of Geology in the British Museum, reads :

"In reply to your enquiry, addressed to the Geological Society, *Dr. Prior and I are of opinion that the grooves in the enclosed specimen are artificially cut. We do not think that the weathering of a banded flint would produce the result."

The patination of the chipped surfaces of the grooves leaves no loophole for doubt as to their antiquity.

*Dr. G. T. Prior, M.A., D.Sc., Keeper of the Minerals in the British Museum.

DESCRIPTION OF SPECIMEN IN PLATE II.

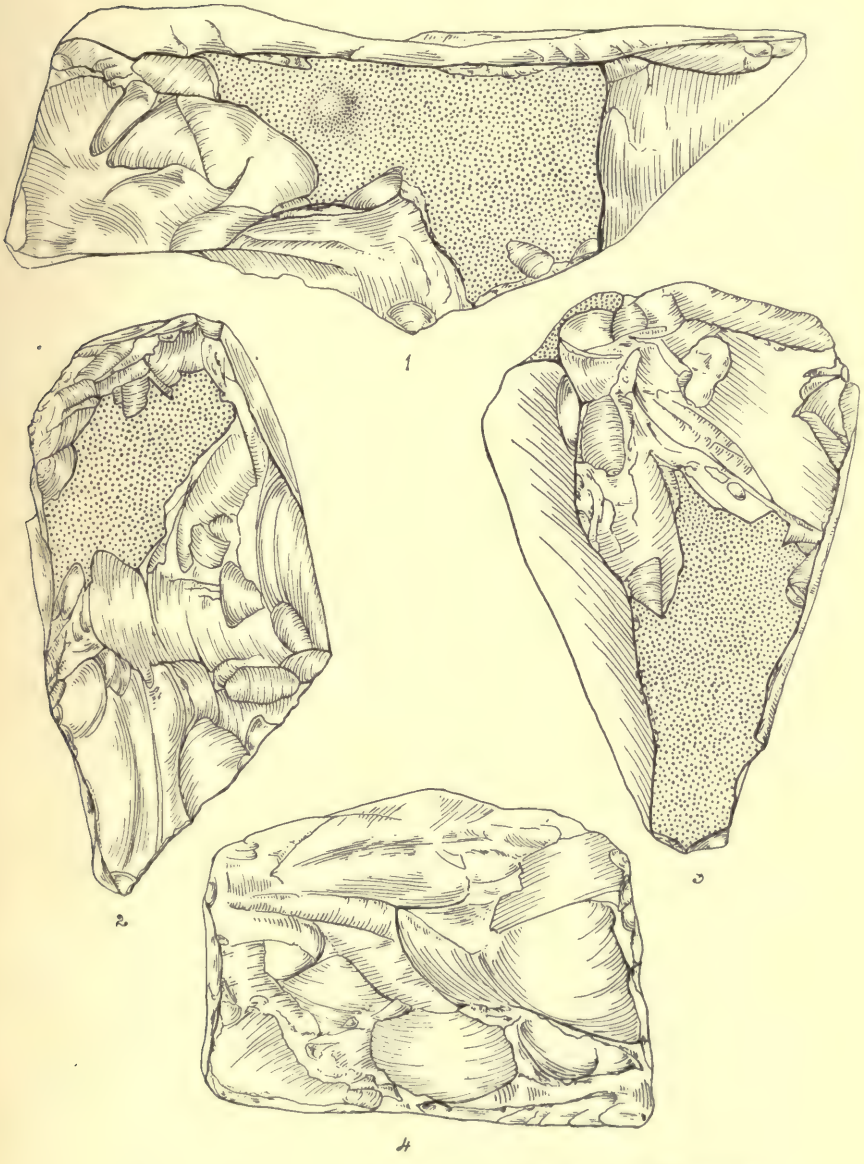
From Marl-filled Pocket. Depth 1½ feet. Figured ⅝-lineal size.

One face of this thin piece of flint is slightly domed in form and still covered with the original crust or outside of the nodule, while the other is flat and, as shown in the reproduction, has been neatly and apparently designedly chipped into discoidal shape. The spongeous petrification forming the surface of the chipped face, radiates in low ridges from the centre to the circumference, and is studded with tiny crystals that in the sunshine or by artificial light scintillate diamond-like rays. In shape, old gold colour and brilliancy the object suggests a Solar Disc, possibly linked with some primitive form of Sun-Worship.

Unfortunately the photographic illustration does not do justice to this specimen, in that it fails entirely to present the glittering effect characteristic of the flat, circular surface.

The chipping of the contour is of such character as to accentuate a natural resemblance, so that the relic, unlike that illustrated in Plate I, belongs to the controversial category of "Figure Stones."

BRAMBRIDGE SITE. PLATE III.



Gertrude M. Chard. Del.

For descriptions, see page 20.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE III.

From the Marl-filled Pockets. Depth 2¼ to 2¾ feet. All figured ⅜-lineal size.

Nos. 1, 2 and 4. Massive blanks of tabular flint, showing primary work only. No. 1, three inches in thickness, is chipped over part of one face, and to a point at one end, the other face being still covered with the crust or original outside of the flint. No. 2, 1½ inches thick, of trapezoidal form, has been neatly chipped over the whole of one face and most of the other. No. 4, the patina of which has softened and slightly decayed, is 2 inches thick, and is flaked over one face only, the crust of the opposite face being unbroken.

No. 3. A large, pointed blank, of carefully selected nodular flint, 3 inches thick at the butt-end, neatly trimmed to shape on its faces and sides. Four big and equally symmetrical, nodular flint blanks of this type were discovered at the same depth.

The shapes and sizes of Nos. 1, 2 and 3 suggest that these blanks were designed to have been ultimately fashioned into large, pick-shaped hand-axes of common River Drift types.

The colours of the patination of the objects mentioned vary from dead white to creamy white and bluish white.

DESCRIPTIONS OF SPECIMENS IN PLATE IV.

From the Marl-filled Pockets. Depth 2¼ to 2¾ inches.
All figured $\frac{1}{10}$-lineal size.

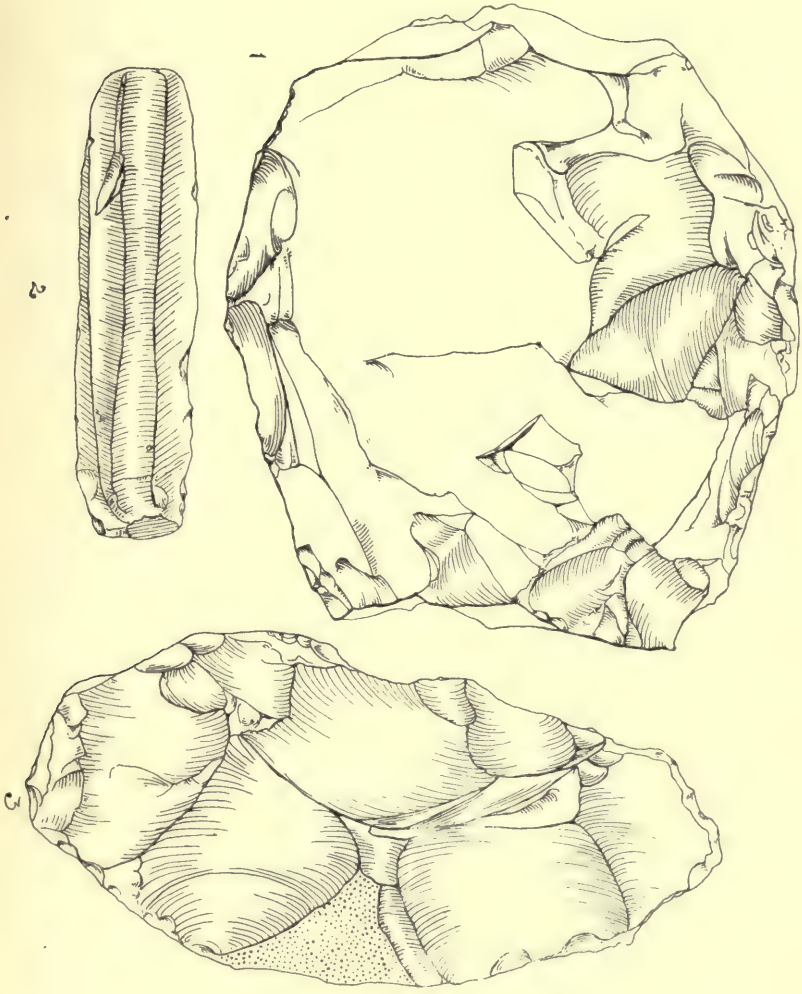
No. 1. The 2-inch thick butt-end of a heavy hand-axe, roughly chipped over the whole of both faces, and evidently broken in process of manufacture. The butt-ends of two rather smaller and finished tools of similar shape were also found.

No. 2. A polygonal core.

No. 3. A hand-axe, tapering from 1½ inches in thickness, made from nodular flint, boldly flaked on both faces, and still showing on each a little of the original crust.

Nos. 1 and 3, together with four other implements discovered at the same depth, are indistinguishable from familiar River Drift types of hand-axes (*coups-de-poing*), except in the colour of their patination, which is creamy-white. The other hand-axes mentioned vary in coloration from dead-white to creamy white and bluish white.

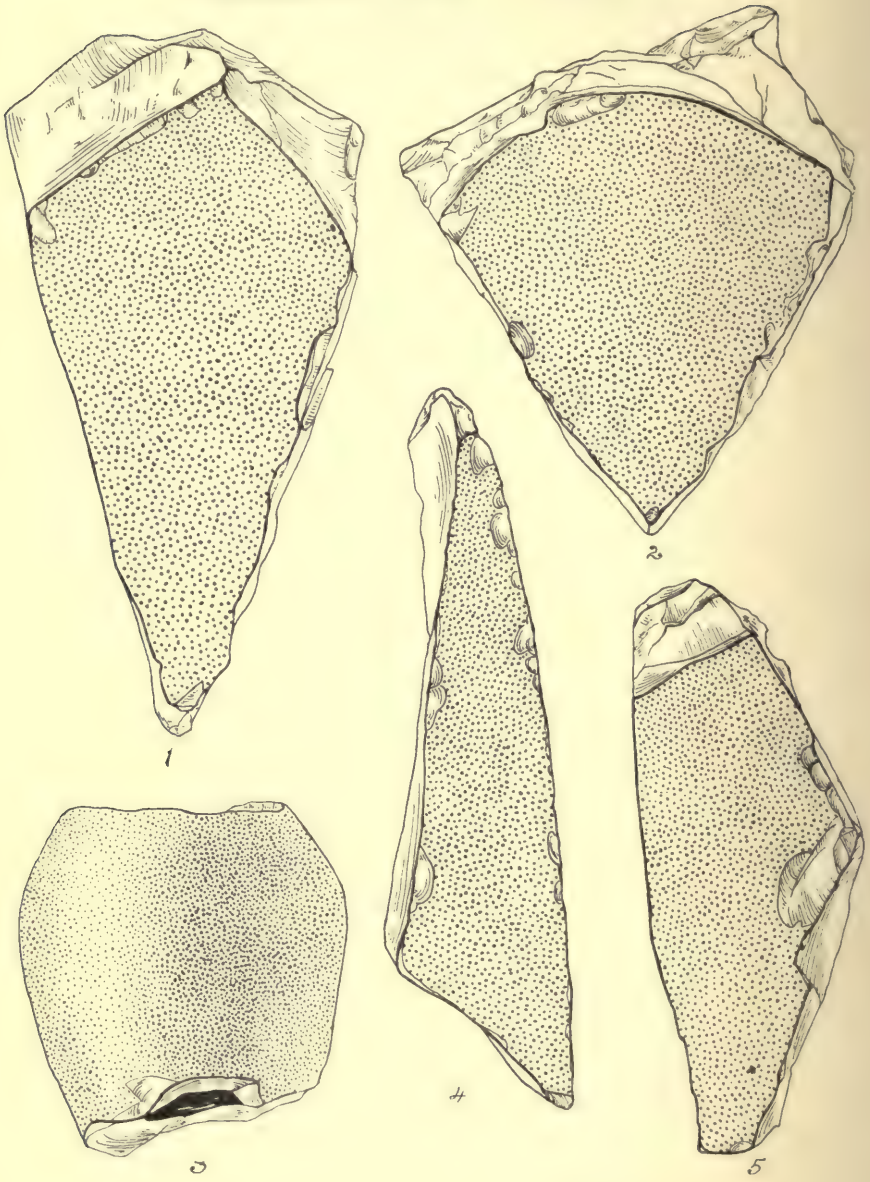
BRAMBRIDGE SITE. PLATE IV.



Gertrude M. Chard. Del.

For descriptions, see page 20.

BRAMBRIDGE SITE. PLATE V.



Gertrude M. Chard, Del.

For descriptions, see page 23.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE V.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾ feet. All figured ¾-lineal size.

Nos. 1, 2 and 5. Typical tabular flint blanks, from ¾-inch to 1¼-inches thick, in process of being shaped, and still covered on their faces with original crust. Their geometrical outlines are completed except at the tops: and there the necessary removal of the superfluous material is well advanced.

No. 3. A nodule of flint, naturally perforated with a hole of practically uniform bore throughout, and apparently designedly chipped at both ends. The finding of four of these objects on the site suggests that possibly they may have been collected and trimmed for use as primitive mace-heads.

No. 4. A large, geometrically shaped chip of tabular flint, seemingly produced in trimming a blank to its final form.

DESCRIPTIONS OF SPECIMENS IN PLATE VI.

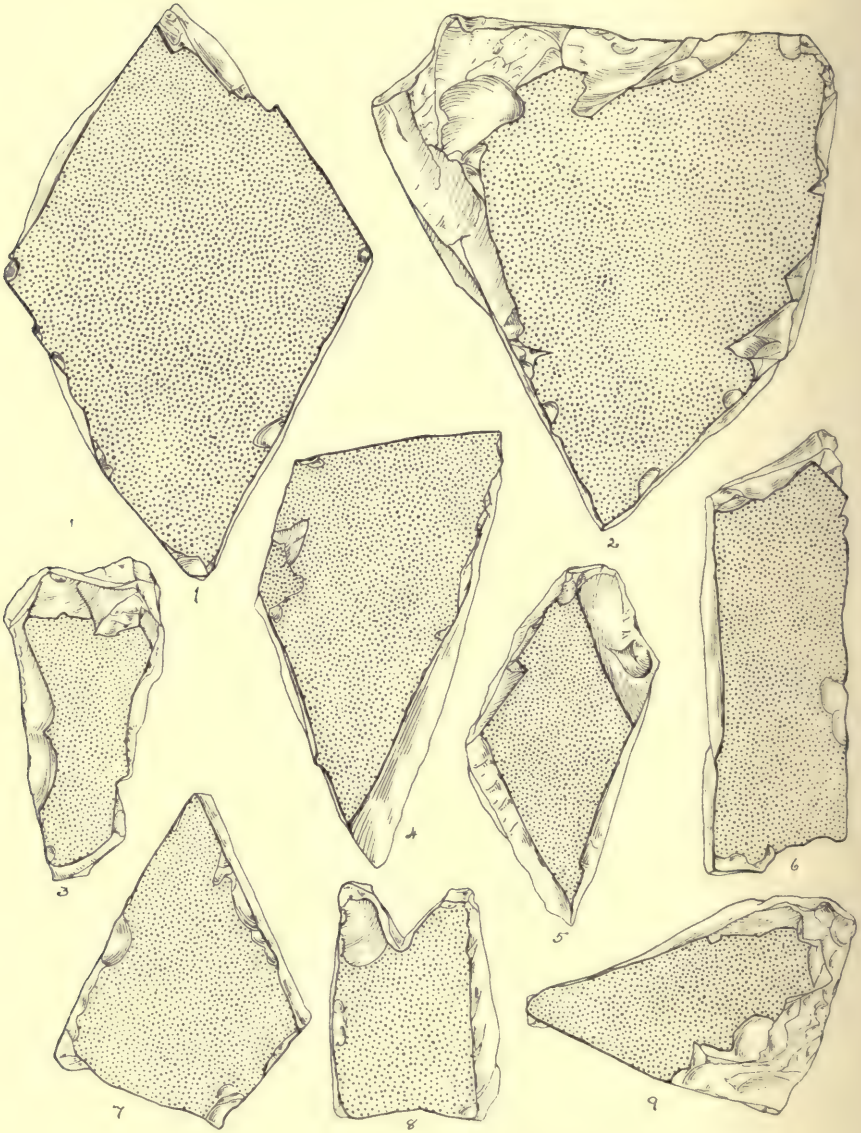
From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾ feet. All figured ¾-lineal size.

Nos. 1, 4, 5, 6 and 7. Typical, large, geometrically formed blanks of tabular flint, varying in thickness from ¾-inch to 2 inches, in approximate proportion to their size, and having their faces still covered with the original crust of the flint.

Nos. 2, 3 and 9. Tabular flint blanks of similar general character to those mentioned above, with the difference that surface-chipping of their faces has been commenced.

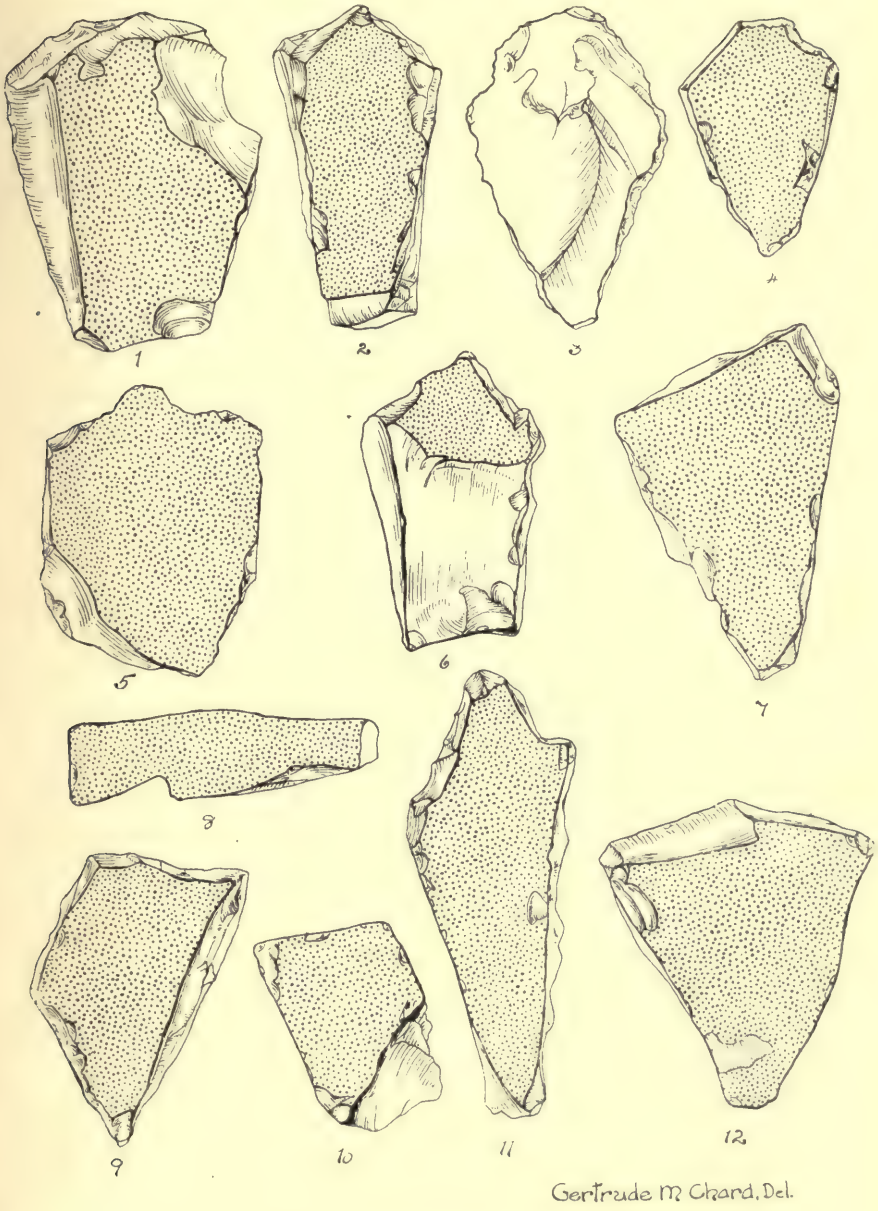
No. 8. A tabular flint blank, 1 inch thick, with unchipped faces, and having a notch chipped out at one end.

BRAMBRIDGE SITE. PLATE VI.



For descriptions, see page 23.

BRAMBRIDGE SITE. PLATE VII.



For descriptions, see page 26.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE VII.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾ feet. All figured ⅛-lineal size.

Nos. 1, 2, 4, 5, 7, 8, 9, 11 and 12. Typical, small sized, geometrically formed blanks of tabular flint, ¼ to ½-inch in thickness, and still covered on their faces with the original crust of the flint. Nos. 4 and 5 suggest arrow-point blanks.

No. 3. A blank, ⅛-inch thick, chipped over the whole of both faces, and perhaps representing an advanced stage in the manufacture of an arrow-point.

No. 6. A typical small blank, ½-inch thick, with the surface-chipping of one face commenced.

No. 10. A characteristic and small sized, trapezium-formed blank of tabular flint, ½-inch thick, with its geometrical outline nearly completed.

DESCRIPTIONS OF SPECIMENS IN PLATE VIII.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾-feet. All figured ⅛-lineal size.

No. 1. An arrow-point in process of manufacture, rather less than ½-inch thick, and boldly chipped over the whole of both faces.

Nos. 2 and 4. Small tabular flint blanks, about ½-inch in thickness, resembling arrow-points, and still covered with the original crust on both faces of each.

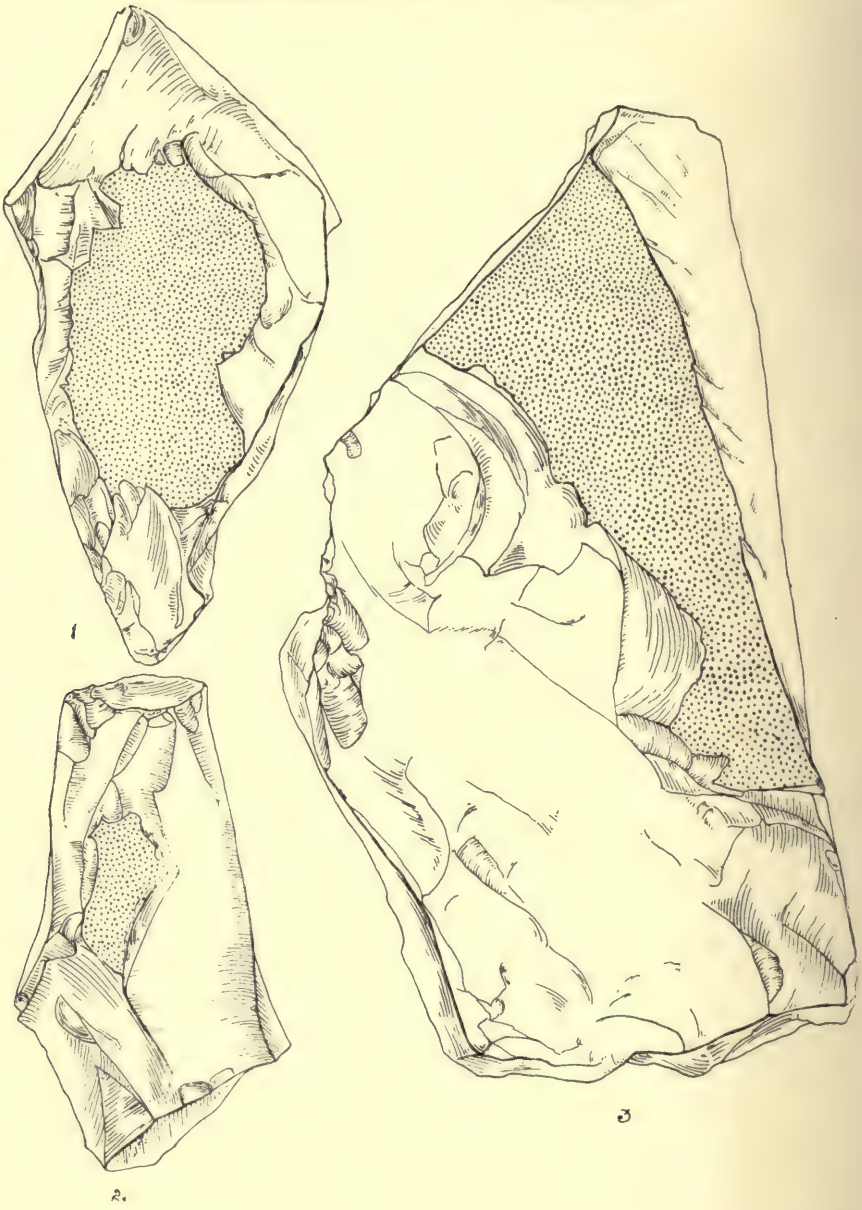
No. 3. A typical, geometrically shaped blank of tabular flint, 1 inch in thickness, with a little of the original crust of one face removed by chipping.

Nos. 1 and 4 appear to represent closely connected stages in the manufacture of an arrow-point of the same type.

BRAMBRIDGE SITE. PLATE VIII.

For descriptions, see page 26.

BRAMBRIDGE SITE. PLATE IX.



Gertrude M. Chard, Del.

For descriptions, see page 29.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE IX.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾-feet. All figured ⅙-lineal size.

Nos. 1, 2 and 3. Typical, geometrically shaped blanks of tabular flint, varying from just over ½-inch to 1½-inches in thickness. Surface-chipping has been commenced on one face in all three examples, but the opposite faces are still completely covered with the original crust.

DESCRIPTIONS OF SPECIMENS IN PLATE X.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾-feet. All figured ⅙-lineal size.

Nos. 1, 4, 5, 6, 7 and 10. Typical, small and more or less geometrically shaped blanks, varying from ⅛ to ¼-inch in thickness, and chipped entirely over both faces in every case. Nos. 1, 4 and 5 seem to be partly made arrow-points.

No. 2. A tabular flint blank, ½-inch thick, with unchipped faces, and suggesting an early stage in the making of a javelin-head. A closely related but more shapely blank is shown in Plate XI, No. 4. *Depth 2 feet.*

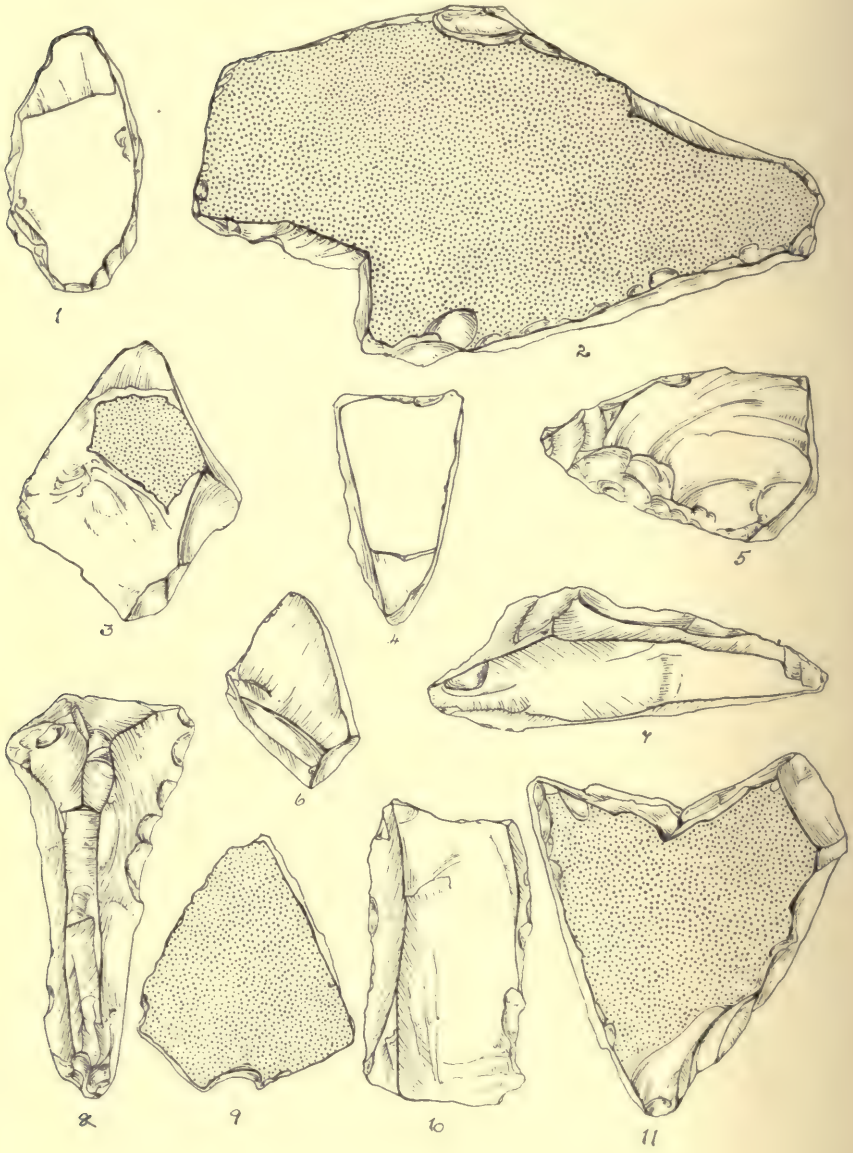
No. 3. A typical, small blank of tabular flint, ⅓-inch thick, with most of the crust of one face removed by chipping.

No. 8. Presumably a partly manufactured gouge, chipped neatly all over. A completed tool of similar type is shown in Plate XV, No. 2.

No. 9. A blank of tabular flint, ⅛-inch thick, resembling an arrow-point, and still covered on both faces with the original crust of the flint.

No. 11. A tabular flint blank, just over ½-inch in thickness, and surfaced on both faces with the original crust. This particularly interesting specimen is apparently a well shaped, trapezium-formed blank in process of being fashioned into a javelin-head. *Depth 1½ feet.*

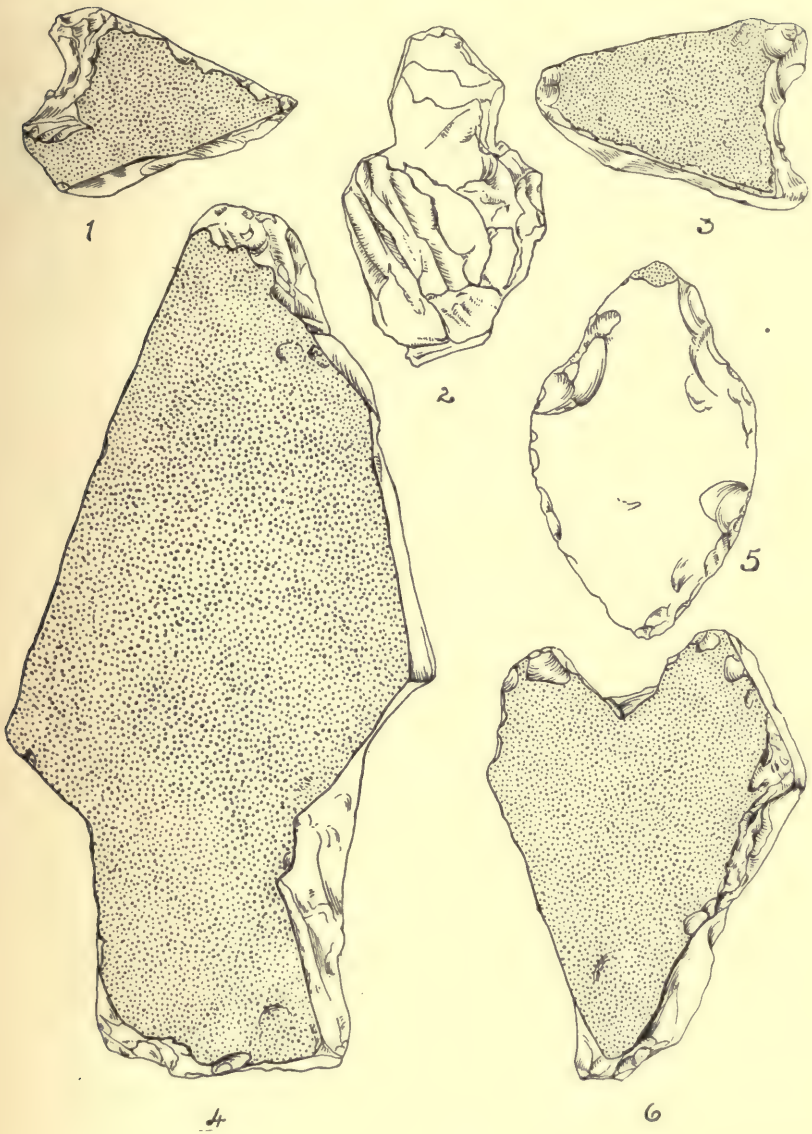
BRAMBRIDGE SITE. PLATE X.



Gertrude M. Chard. Del.

For descriptions, see page 29.

BRAMBRIDGE SITE. PLATE XI.



Gertrude M Chard Del

For descriptions, see page 32.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XI.

Nos. 1 *and* 2 *from Deposit No.* 1. *Depth* 5 *to* 9 *inches. Remainder from Deposit No* 2, *including the Marl-filled Pockets. Depth* ½*-foot to* 2¾*-feet. All figured* ¾*-lineal size.*

Nos. 1 and 3. Blanks of tabular flint respectively ¼ and ½-inch in thickness, resembling arrow-points, and still covered with the original crust on both faces of each.

No. 2. Obviously an advanced stage in the manufacture of an arrow-point of the type of that shown in Plate XIX, No. 2. It is chipped over the whole of its surface, and is ⅝-inch thick.

No. 4. A tabular flint blank, ½-inch in thickness, and simulating in shape a large javelin-head. The outline of this blank should be considered in relation to the forms of No. 2 in the same Plate and No. 2, Plate X. *Depth* 1½ *feet.*

No. 5. A nearly completed arrow-point, ⅛-inch thick, and chipped over the whole of both faces. *Depth* 2 *feet.*

No. 6. Apparently the tabular flint blank of a javelin-head, ¾-inch in thickness, and covered with the original crust on both faces. It is closely related to No. 11, Plate X, from which it differs essentially only in the fact that its final geometrical outline is completed. *Depth* 1 *foot.*

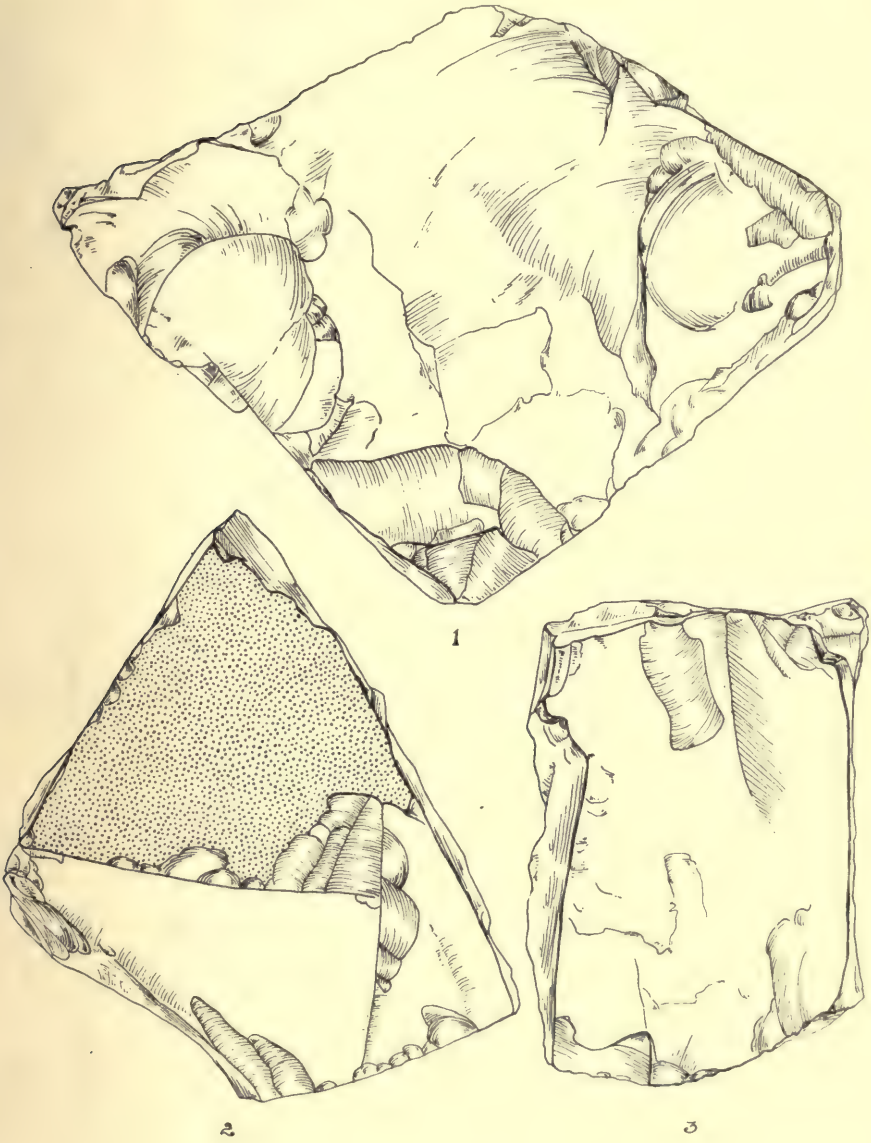
DESCRIPTIONS OF SPECIMENS IN PLATE XII.

From Deposit No. 2, *including the Marl-filled Pockets. Depth* ½*-foot to* 2¾*-feet. All figured* ⅛*-lineal size.*

Nos. 1 and 3. Typical tabular flint blanks, respectively 1 inch and ¾-inch in thickness, of geometrical forms, and chipped entirely over one face of each, the other faces being still covered with original crust.

No. 2. Typical, geometrically shaped tabular flint blank, 1 inch thick, with the surface chipping commenced on one face only.

BRAMBRIDGE SITE. PLATE XII.



Gertrude M. Chard, Del.

For descriptions, see page 32.

BRAMBRIDGE SITE. PLATE XIII.

Gertrude M. Chard Del.

For descriptions, see page 35.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XIII.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾ feet. All figured ⅕-lineal size.

No. 1. A characteristic tabular flint blank, an inch thick at its butt-end, and tapered by chipping, extending wholly over one face and half over the other, to a little more than ½-inch thickness at the other end.

Nos. 2 and 3. Typical blanks of tabular flint, each chipped on one face only, the other being still covered with the original crust.

DESCRIPTIONS OF SPECIMENS IN PLATE XIV.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾ feet. All figured ⅛-lineal size.

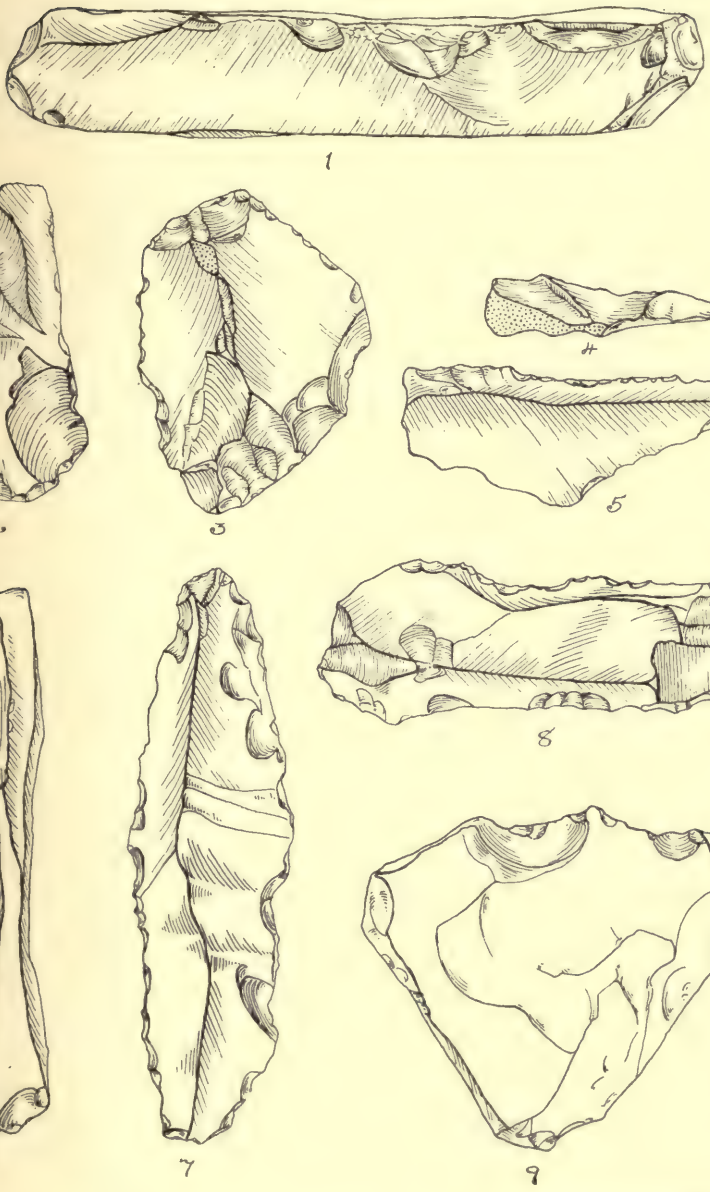
Nos. 1, 3 and 4. Typical, geometrically formed blanks in process of manufacture into implements. No. 1 is 1 inch thick, and is chipped over the whole of both faces. No. 3, ¾-inch in thickness, has been chipped over one face only; and should be compared with the similarly shaped, mixtilinear-triangular blank shown in Plate V, No. 2. No. 3 is 1 inch thick; and has only a small fragment of the original crust left on one face.

No. 2. This object, ¼-inch thick, is chipped carefully over both faces, and is evidently an almost completed scraper of a type and size common on the site.

BRAMBRIDGE SITE. PLATE XIV.

For descriptions, see page 35.

BRAMBRIDGE SITE. PLATE XV.



For descriptions, see page 38.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XV.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾ feet. All figured ¾-lineal size.

No. 1. A typical polygonal core.

Nos. 2 and 6. Respectively well designed gouge and chisel.

Nos. 3, 7 and 8. Flakes characteristic of the site. All are worked on one face only, the other face in every case showing a well marked bulb of percussion. *Depth ¾ to 1 foot.*

Nos. 4 and 5. Typical pointed implements.

No. 9. A typical, thin, flat, sub-triangular scraper, worked only along the edge of its longest side. Many scrapers of this particular form were found. *Depth 2 feet.*

Only Nos. 3 and 4 show any traces of original crust, and these only on the figured face of each.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XVI.

From Deposit No. 2, including the Marl-filled Pockets. Depth ½-foot to 2¾ feet. All figured ¾-lineal size.

No. 1. A creamy white coloured, Celt-like implement, of pointed-elliptical section, ½-inch thick, and chipped completely over its surfaces. The cutting-edge, produced by alternate chipping of both faces of the tool is markedly zig-zag. *Depth 1½ feet.* A smaller but otherwise similar implement was also found.

Nos. 2 and 3. Characteristic knife-flakes, trimmed on one face of each, the other face showing in either case a well defined bulb of percussion.

No. 4. A beautifully made, heart-shaped or curvilinear-triangular, bluish white implement, neatly flaked over both faces. Less than ½-inch thick at its centre, it tapers thence to an exceedingly thin, regular and sharp cutting-edge all round. *Depth 1¾ feet.*

Nos. 5, 6 and 7. Small pieces of naturally perforated flint, trimmed to a characteristic peardrop shape. The large number of these objects found suggests that they were intentionally chipped on the site, perhaps for use as beads or pendants.

No. 8. A Celt-like implement, of pointed-elliptical section and creamy white colour, neatly chipped all over, and with sharply pointed butt. The cutting-edge at the opposite end has been produced by bold flaking from both faces; and the two sides of the tool are quite sharp, their edges being also slightly zig-zag when the specimen is viewed sideways. *Depth 2 feet.*

Nos. 9 and 10. White flakes resembling arrow-points. *Depth 2¼ feet.*

No. 11. A very small, white blade, finely chipped on both faces, and probably intended for use as an arrow-point. *Depth 1¾ feet.*

BRAMBRIDGE SITE. PLATE XVI.

For descriptions, see page 39.

BRAMBRIDGE SITE. PLATE XVII.

For descriptions, see page 42.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XVII.

From Surface-soil (Deposit No. 1). Depth up to 9 inches. All figured ¾-lineal size.

No. 1. A flake chipped to a form suggesting an arrow-point blank.

Nos. 2, 3, 5, 6, 7, 9, 11 and 12. Characteristic implement-blanks of tabular flint, varying from ⅛-inch to ¾-inch in thickness in approximate proportion to their relative increase in size, and still showing on both faces of every example a considerable proportion of the original crust or outside of the flint.

No. 4 is a partly fashioned, leaf-shaped blade of tabular flint. About half the surface of each face has been neatly chipped, the remainder consisting of original crust.

No. 8. The tabular flint blank of a barbed and tanged arrow-point. Both faces have about similar proportions of the original crust still left.

No. 10. A trapezium-formed blank of tabular flint that has been carefully chipped entirely over one face, none of the original crust having been removed from the other.

DESCRIPTIONS OF SPECIMENS IN PLATE XVIII.

From Surface-soil (Deposit No. 1). Depth up to 9 inches. All figured ⅝-lineal size.

Nos. 1 and 2. Typical flakes, chipped only on one face of each, the other in both cases showing bulb of percussion. The edges of No. 1 are neatly worked.

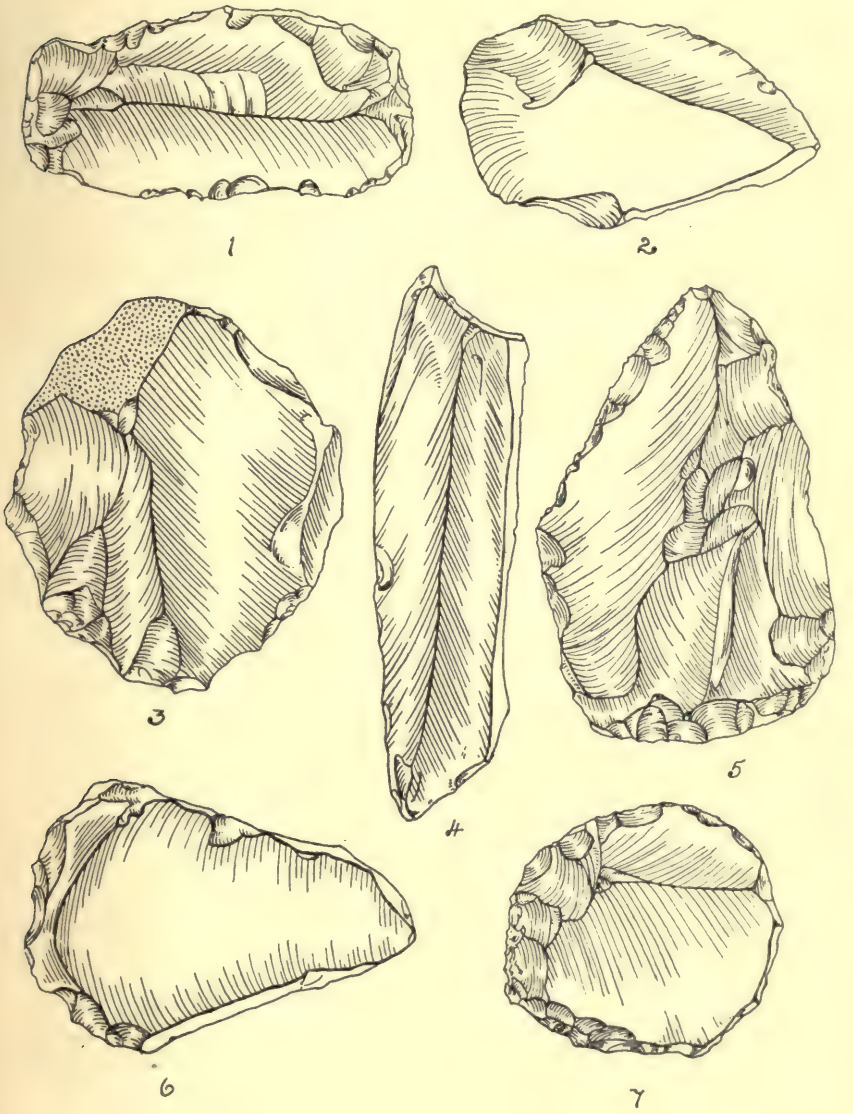
No. 3. A thin ovate implement made from a flake and chipped on one face only. Three specimens of this type, which is unusual in the district, were found.

No. 4. A typical core.

Nos. 5 and 7. Well fashioned scrapers, of characteristic forms. Each has a boldly defined bulb of percussion on its unworked side.

No. 6. An unusual type of scraper.

BRAMBRIDGE SITE. PLATE XVIII.



Gertrude M. Chard, Del.

For descriptions, see page 42.

BRAMBRIDGE SITE. PLATE XIX.

Gertrude M. Chard. Del.

For descriptions, see page 45.

BRAMBRIDGE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XIX.

From Surface-soil (Deposit No. 1). Depth up to 9 inches. All figured $\frac{2}{3}$-lineal size.

No. 1. Thin ovate implement, completely chipped over both faces, and sharp all round its edges.

No. 2. A beautifully fashioned arrow-point. No. 2, Plate XI, shows what is apparently a partly made arrow-point of this type.

No. 3. A chipped Celt, exhibiting better design and execution than are usual in this type of implement.

No. 4. A quite thin ovate implement, chipped over the whole of both faces, and admirably adapted for use as a curved cutting-tool, one side being sharp and the other conveniently blunted for grasping in the hand.

No. 5. A fragment of a Celt which, while still showing traces of the chipping, has had some of its facets removed by grinding. Three halves of similar, partly ground Celts were discovered; and the cutting end of what had evidently been an exceptionally large and well-polished Celt was also found about 100 yards from the site.

No. 6. A neatly made, thin implement, with very sharp curved edge.

No. 7. A fragment of tubular flint that, possibly for purposes of personal adornment, has been carefully polished on both faces.

No. 8. A roughly chipped Celt, of a type common on the site.

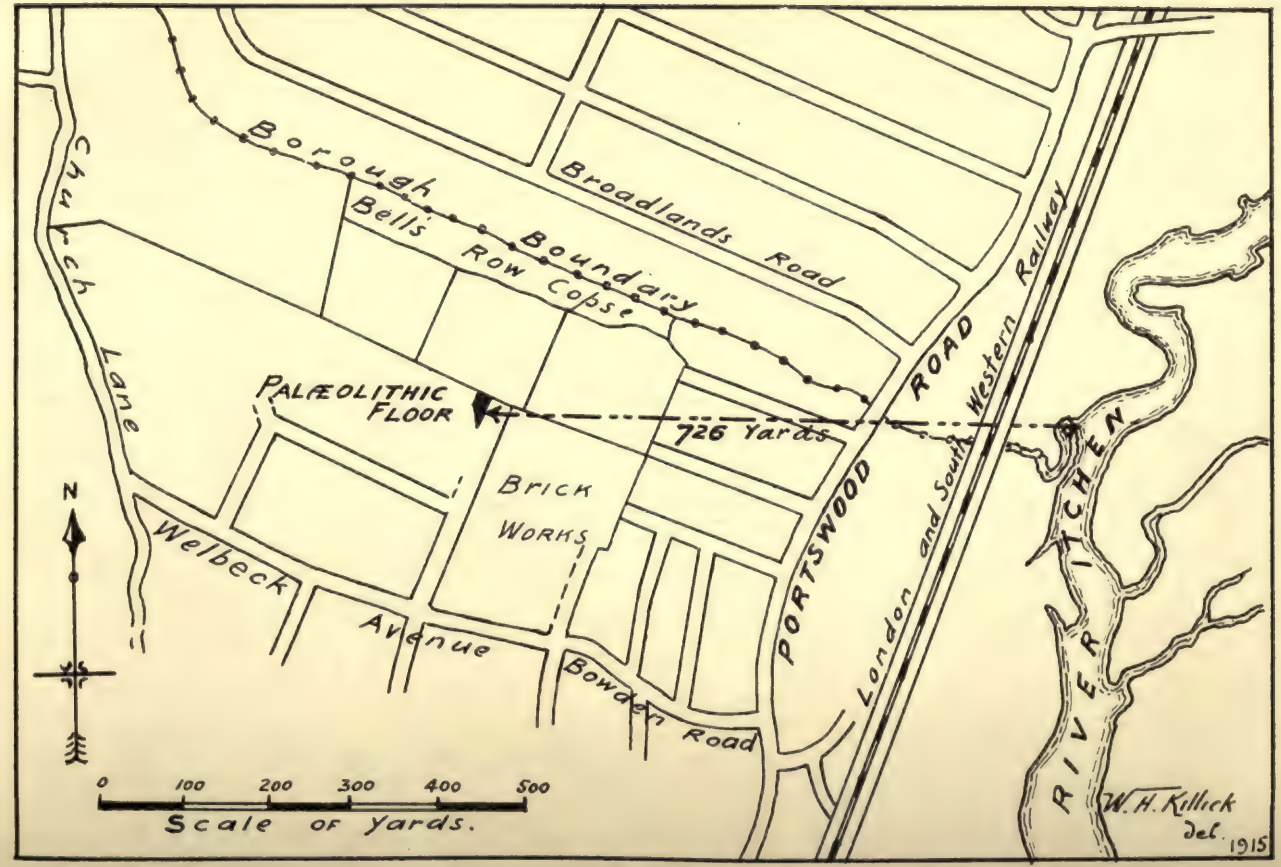


Fig. 5. SITUATION OF THE HIGHFIELD SITE.
Drawn from a Plan kindly made by the Ordnance Surveys.

A PREHISTORIC INDUSTRY IN TABULAR FLINT AT HIGHFIELD, SOUTHAMPTON.

THE SITE.

The prehistoric Floor upon which flint implements had apparently been manufactured on an extensive scale, was approximately 13 by 33 yards in extent. It lay upon a terrace on the higher slope of what was at one time the bank of the ancient River Itchen, and was 90 feet above the mean level of the present tidal river, distant, as shown in Fig. 5, about 726 yards.

The chance discovery of a geometrically and suggestively shaped blank of tabular flint on a gravel-heap during 1914

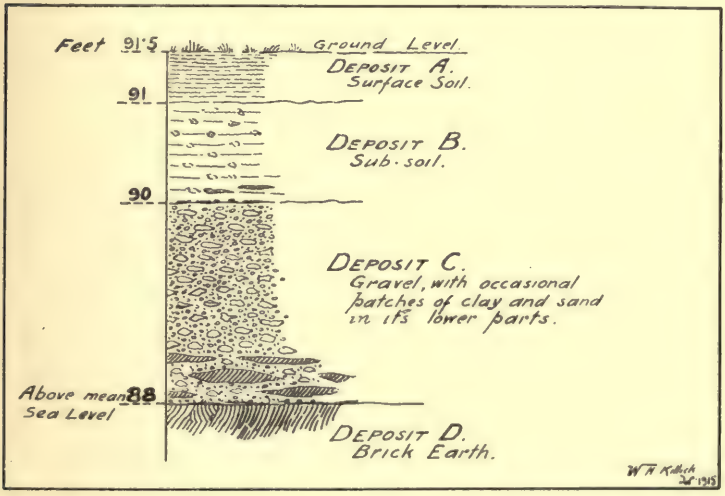


Fig. 6. SURFACE DEPOSITS OF THE HIGHFIELD SITE.

furnished the clue that led to investigation and so to the discovery of the workshop site, upon the border of which the removal of the gravel for industrial purposes was discontinued until the spring of 1915, when the whole area was cleared.

THE DEPOSITS OR LAYERS.

The various surface-deposits of the site shown in Fig. 6 were quite clearly defined, and are described in detail beneath.

Deposit A.—The surface soil, averaging 6 inches in depth, was of light, loamy character; and contained both completed and partly made flint implements of surface types and fine workmanship, as well as a few flint cores with many facets from which long flakes had been struck for use as knives, etc., numerous flint flakes and chips, and a number of small, geometrically shaped blanks of thin tabular flint. A fine polished Celt was found in the neighbourhood of the site.

Deposit B.—The subsoil, about a foot in mean depth, consisted of a greyish coloured mixture of sand and soil, containing approximately 20 per cent. of sub-angular flints and a very few flint pebbles. Patches of sandy clay and of sand were stratified horizontally in its lower part.

While the upper portion of the subsoil held, in the way of prehistoric Man's handiwork and so far as was observed, only a few small, geometrically shaped blanks of tabular flint, the bottom 4 to 5 inches of it consisted of the débris of a flint-implement workshop, nearly all the stones entering into its composition having apparently been purposely shaped by human agency. This layer contained numerous finely chipped implements, some partly made tools, others broken in the making, many polygonal cores, great number of flint flakes and chips, and quantities of large, medium and small sized, geometrically shaped blanks of tabular flint.

With the exception of some of the blanks lying at the base of the deposit and more or less embedded in the surface of the gravel, as described in the following paragraph, the edges

of the artificially chipped objects of flint found on the site were remarkably sharp and free from abrasion, from which fact it may be rationally inferred that the tools and general workshop débris were made in the vicinity where they were found. The artificially ground, Celt-like implement figured Plate XXXVII, No. 8, is of more moment than anything else found on the site.

Deposit C.—The gravel, of an average depth of 2 feet, consisted of sub-angular flints and a small proportion of flint pebbles, embedded in a matrix of mixed sand and clay—clay in places. Neither marine nor fluviatile shells were disclosed; and no quartz or chert was noticed. This deposit contained, just embedded or partly embedded in its surface, an unusually large ovate implement, fashioned from tabular flint, and many tabular flint blanks, mostly of large size, showing more or less abrasion of some or of all of their edges. Occasionally one side of such a blank was markedly battered at its edges, while those of the opposite side were still perfectly clean cut and sharp.

In the lower parts of the gravel were found 2 medium sized ovate tools and several pointed hand-axes, all roughly made, of common River Drift types, and, with one exception, so much rolled as to have become nearly smooth.

The gravel may quite possibly have been re-deposited detritus from an early deposit of the ancient River Itchen, accumulated by ordinary denuding agencies in the position it occupied. In that case it would be of later date than the brick-earth upon which it rested. On the other hand, it might have been a gravel terrace directly deposited by the River when it flowed at almost its high level mark. The only definite indication as to its age is the presence of undoubtedly Palæolithic implements in it, this fact seeming, beyond reasonable question, to place it as Pleistocene in period.

Deposit D.—This layer of coarse textured and brownish hued brick-earth has been tested to a depth of 18 feet, and is evidently an ancient deposit of the Itchen.

THE FLINT.

The tabular flint from which prehistoric Man of the Palæolithic Age here shaped his stone tools, had evidently been obtained from different sources, as it varied greatly in colour and character. Some of the gravels of the neighbourhood contain tabular flint of yellowish colours, notably a honey-hued, cherty kind, admirably adapted for chipping into implements; and much of the raw material used on the site was of this character, and had been indubitably collected from gravel, though the gravel-bed immediately contiguous, while rich in large nodules, did not contain any pieces of tabular flint. Some sorts, however, that were utilised had certainly come from chalk districts. For instance, a remarkably distinct and dense, bluish-black table flint, previously seen by the writer only as a thin seam in the face of chalk situated about 6 miles distant from the Floor, was represented by a number of large and medium sized, geometrically shaped blanks.

THE FLINT BLANKS.

Of the hundreds of blanks or implement-forms discovered on the Floor, over 90 per cent. were of tabular flint, split into definite and purposeful, geometrical shapes, many differently sized examples of every such form being found. They varied from the size of a small arrow-point to a well shaped trapezium 15 inches long, 10 inches wide and 3 inches thick. While blocked out with considerable precision, the blanks were not generally of such perfect geometrical proportions as were those of the Brambridge site, where, broadly speaking, the craftsmen worked in one kind of flint, and that peculiarly suitable for their purpose.

Tabular flint, when it occurs in gravel, is usually found as isolated slabs, of irregular shape and with more or less battered edges. It is never found—at least in the Southampton gravels—as geometrically formed blanks like those under consideration.

Such of the tabular flint as was collected from gravel was apparently chipped into geometrical shapes on the site, since

large and more or less geometrically formed chippings of this class of flint abounded in the débris; but it may be inferred from the absence of similar chippings of the other kinds of flint used that the blanks of these were already geometrically formed when brought to the site. That they were carried by hand and not by natural agencies seems conclusively proved by the perfect sharpness of the edges of all but those relatively few specimens which, as described in paragraph 2, page 49, were more or less embedded in the surface of the gravel.

While the question as to whether such geometrically shaped tabular flint blanks were of Man's manufacture or merely of his selection, has been considered already, with special reference to some Highfield specimens, on pages 8 to 14, it is desirable to here draw attention to the purely local character of some types of blanks. For instance, not a single example of any one of those shown in No. 2, Plate XXII, No. 1, Plate XXI and No. 2, Plate XXIV, three of the very commonest of Highfield blanks, was found at Brambridge. This fact is not in itself a proof that the blanks are of human fashioning, since, were naturally formed blanks of all shapes available, it is quite reasonable to think that prehistoric Men of different tribes, or in different stages of cultural development, would make respectively different selections from them. When, however, considered in conjunction with the evidence on the pages mentioned above, it becomes valuable confirmation of the artificial character of the blanks.

THE FLINT IMPLEMENTS.

Plates XX to XL, inclusive, illustrate a series of objects of flint, including completed tools, characteristic of the industry carried on upon the site in prehistoric times. Most of the manufactured implements, none of which seem to have been discarded as worn out, were obviously made from tabular flint, while, as will be seen from the specimens figured, they show progressive development from beautifully chipped examples of hand-axes (*coups-de-poing*) to tools that are generally considered typical of the latest stages of Palæolithic civilization.

PATINATION OF THE CHIPPED SURFACES.

The chipped surfaces of artificially produced objects of flint found in the surface soil (Deposit A) were patinated various gradations of grey, from dark to silver-grey; and were practically all glossy. Iron-staining occurred in only one or two cases.

Those from the subsoil (Deposit B) and surface of the gravel were generally stained the yellow, buff, brown and greenish shades of colour characteristic of Palæolithic implements of the Highfield gravels, but a few were unchanged excepting for an acquired brownish tinge. Most of the implements discovered had lustrous surfaces.

To obviate unnecessary recapitulation, the colours of the patinated surfaces of figured objects are only given in the letterpress descriptions of these specimens when it seems, for special reasons, desirable to do so.

No rechipped tools were noticed.

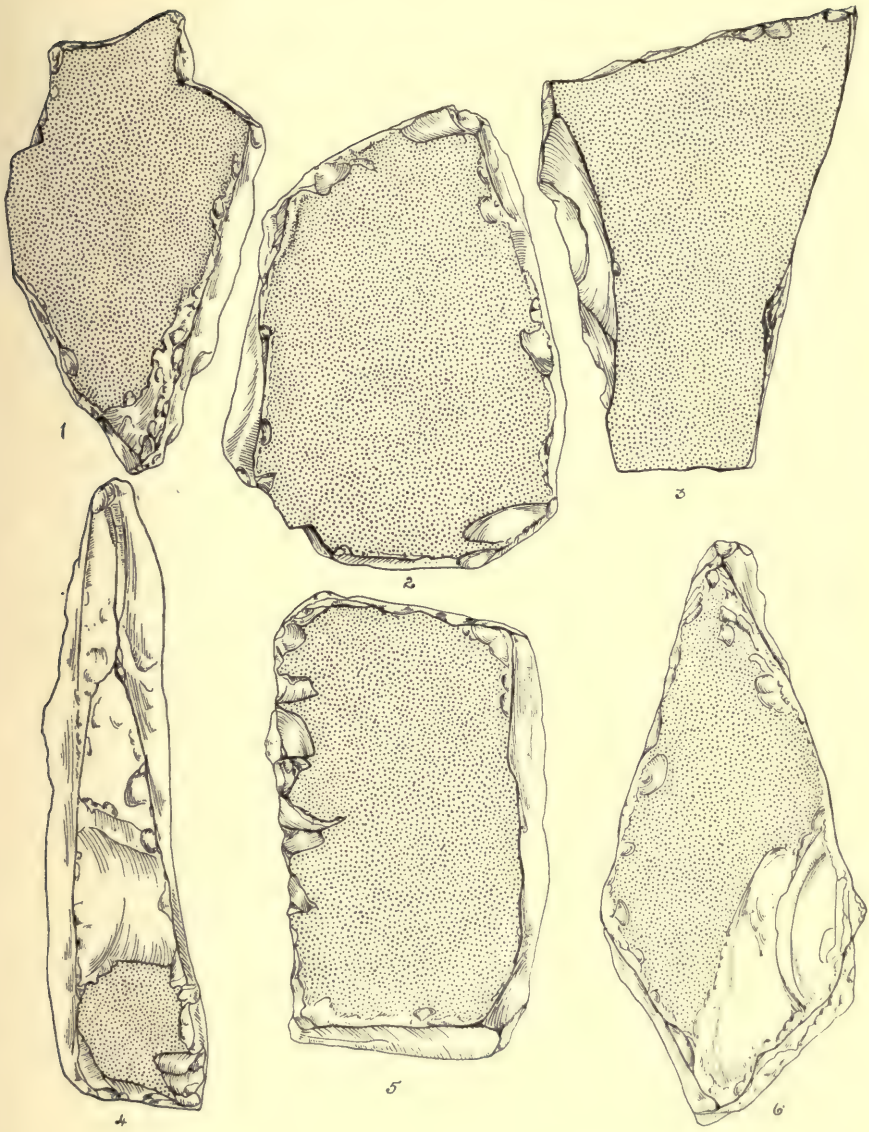
OBJECTS OF PROBLEMATICAL ARTISTIC CHARACTER.

Several "Figure Stones," with their natural similitude to animal forms accentuated by chipping of a character much more suggestive of human intelligence and skill than is usual in such objects, were found. The facts of their being discovered on a flint-workshop site and of every specimen being so chipped as to stand firmly on end upon its base, emphasize the possibility of primitive Man having aided Nature in their production.

OBJECTS OTHER THAN OF FLINT.

Neither the site nor its near vicinity yielded any metal, bone tools or pottery. Many small pieces of broken bone were found in the surface of the gravel; but they were too fragmentary for identification. In view of their interest, some of them were submitted to Dr. C. W. Andrews, D.Sc., F.R.S.; but even he could only determine that they were bones of a large-sized quadruped, such as a horse.

HIGHFIELD SITE. PLATE XX.



Gertrude M. Chard. Del.

For descriptions, see page 54.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XX.

From Deposit B and surface of Deposit C. Depth from 13 to 20 inches. All figured $\frac{1}{7}$ lineal size.

No. 1. A tabular flint blank, $1\frac{1}{4}$ inches thick, resembling in outline a large javelin-head. Surface chipping has been commenced at the pointed end, but otherwise the faces are still covered with the original crust of the flint.

Nos. 2, 3 and 5. Typical roughed out blanks of tabular flint, from 1 inch to $1\frac{1}{4}$ inches in thickness, and with the crust of their faces practically intact.

No. 4. A heavy, pointed blank of tabular flint, $2\frac{1}{2}$ inches thick, with nearly the whole of the original crust of one face removed by chipping, that of the other being unbroken.

No. 6. A typical, large-sized and symmetrically formed blank of tabular flint, 2 inches thick, and showing the surface chipping commenced on one face, the other being completely crust-covered.

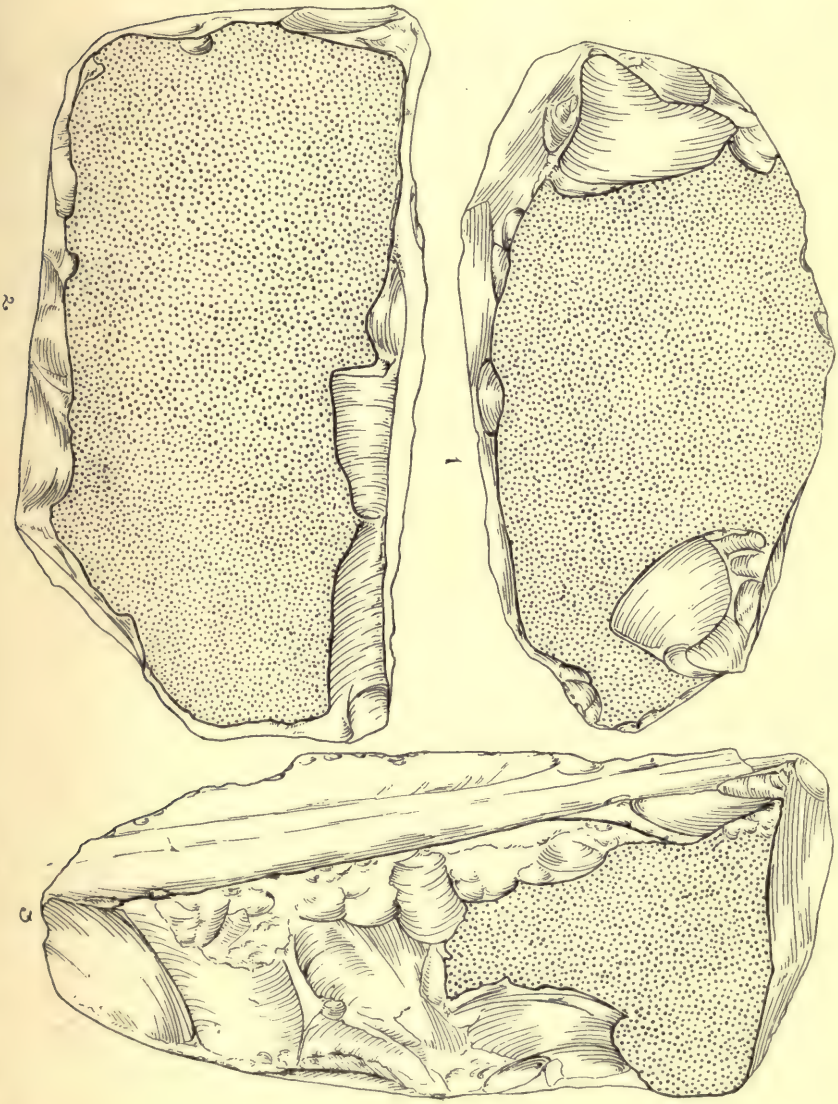
DESCRIPTIONS OF SPECIMENS IN PLATE XXI.

From Deposit B and surface of Deposit C. Depth from 13 to 20 inches. All figured $\frac{3}{5}$-lineal size.

Nos. 1 and 2. Roughly blocked out blanks of tabular flint, 1 inch thick, and nearly covered on both faces of each with the original crust.

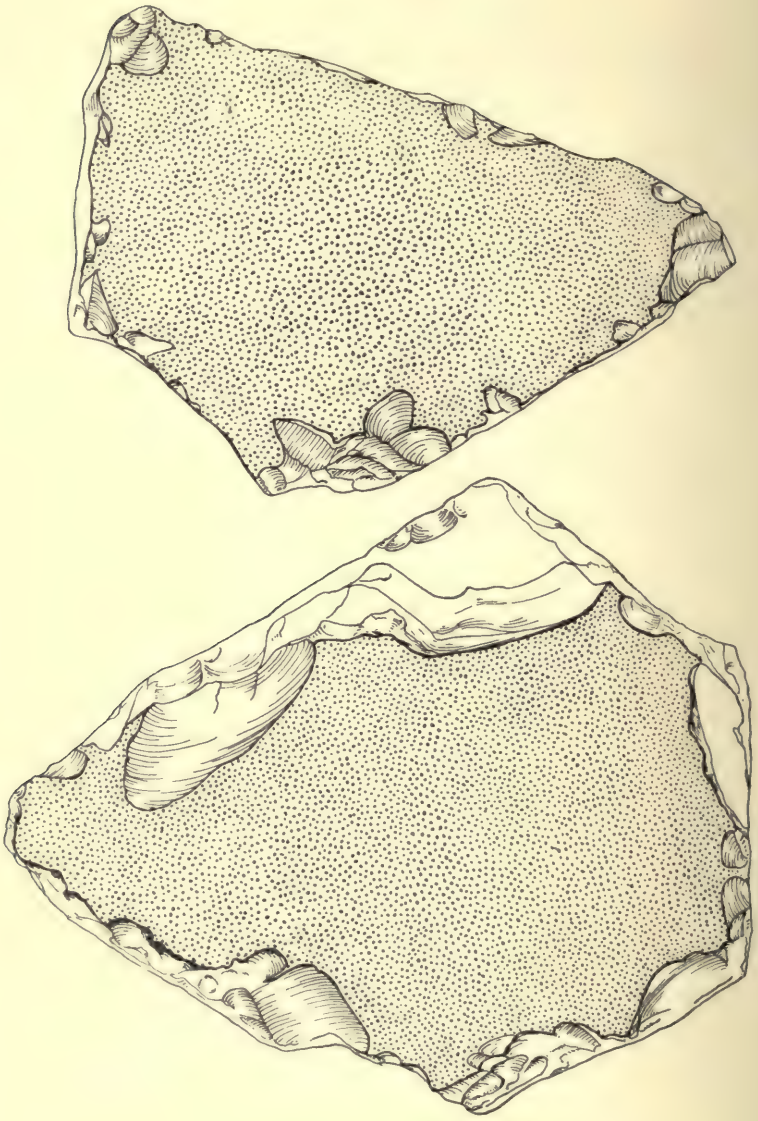
No. 3. A tabular flint blank, 1 inch thick, chipped entirely over one face, and partly over the other.

HIGHFIELD SITE. PLATE XXI.



For descriptions, see page 54.

HIGHFIELD SITE. PLATE XXII.



1

2

Gertrude M. Chard. Del.

For descriptions, see page 57.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXII.

From Deposit B. Depth from 13 *to* 18 *inches. Both figured* $\frac{8}{11}$*-lineal size.*

Nos. 1 and 2. Characteristic tabular flint blanks, $\frac{1}{2}$-inch and $\frac{3}{4}$-inch respectively in thickness, and of the two geometrical forms found in the greatest abundance on the site. Their faces are still covered with the original crust of the flint, excepting where, as shown in the illustration, surface chipping has been commenced on one face of No. 2.

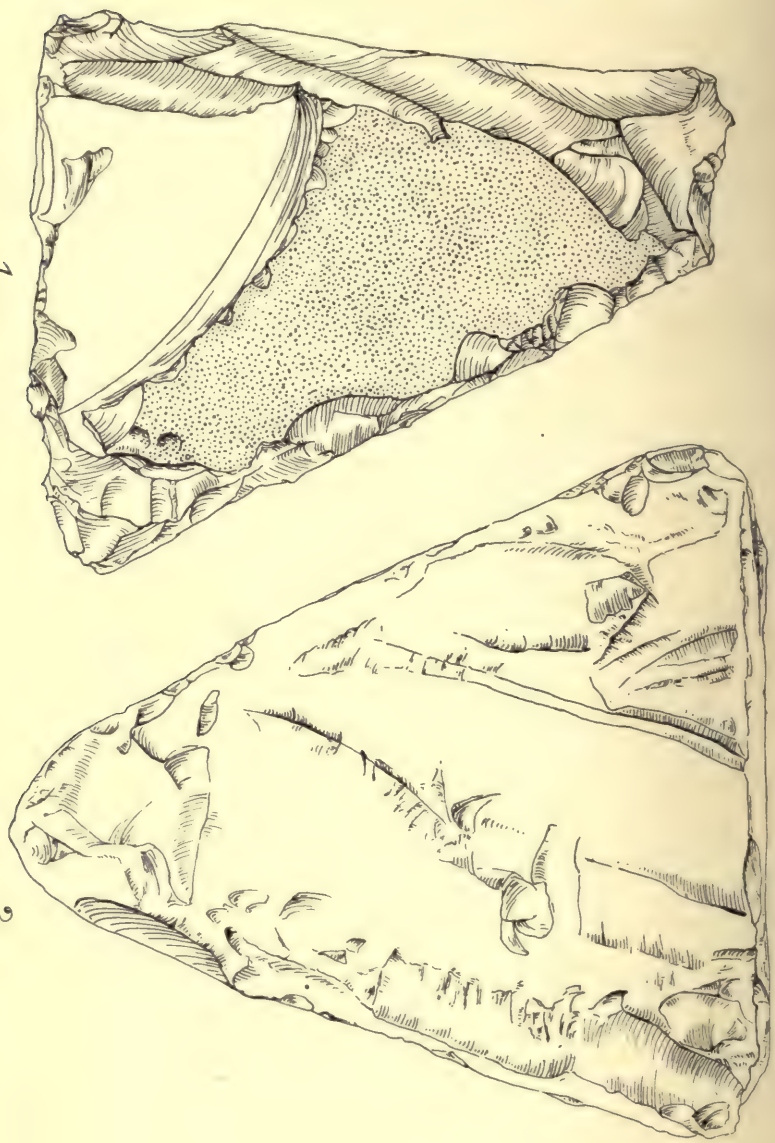
DESCRIPTIONS OF SPECIMENS IN PLATE XXIII.

From Deposit B. Depth from 13 *to* 18 *inches. Both figured* $\frac{1}{6}$*-lineal size.*

No. 1. A typical, geometrically formed blank of tabular flint, 1 inch thick. Surface chipping has proceeded over about half of one face, the other face being still covered with its original crust.

No. 2. A triangular blank of tabular flint, 1 inch in thickness, and chipped entirely over one face, the crust of the other face being unbroken.

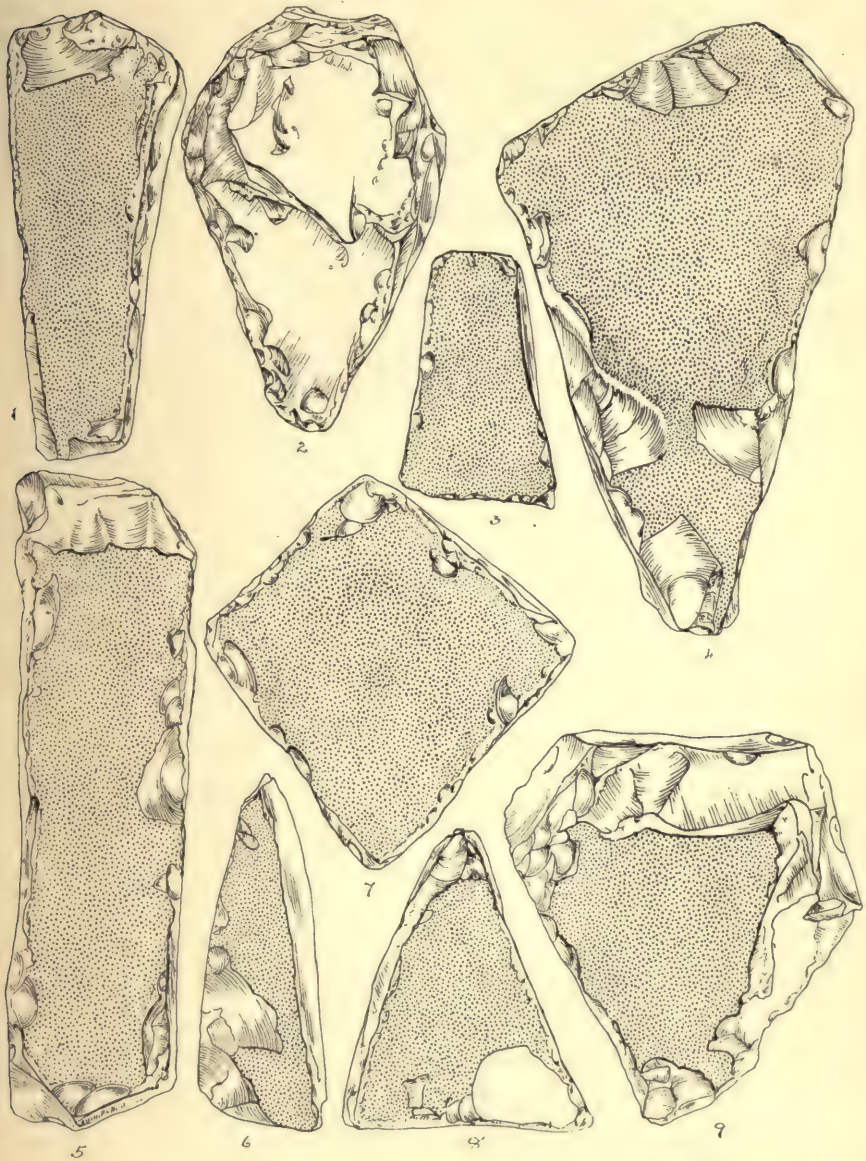
HIGHFIELD SITE. PLATE XXIII.



Gertrude M. Chard, Del

For descriptions, see page 57.

HIGHFIELD SITE. PLATE XXIV.



Gertrude M. Chard. Del.

For descriptions, see page 60.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXIV.

From Deposit B and surface of Deposit C. Depth from 13 *to* 20 *inches. All figured* $\frac{7}{17}$*-lineal size.*

Nos. 1, 3, 4, 5, 6, 7, 8 and 9. Geometrically formed, tabular flint blanks, typical of the site, and varying from 1 to $1\frac{1}{2}$ inches in thickness. The surface chipping of one face of No. 9 is well advanced; but otherwise the faces of all are, practically speaking, yet covered with their original crust or outside.

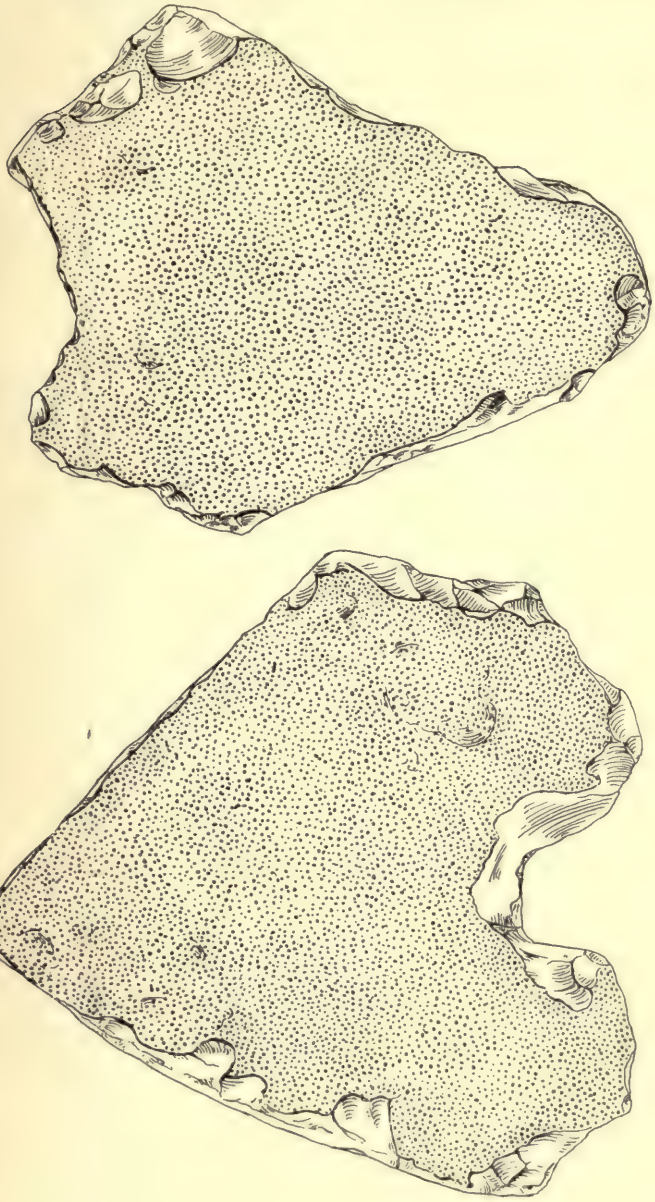
No. 2. A characteristic tabular flint blank, of a type common on the site. It is 1 inch thick; and has been chipped entirely over one face, the crust of the opposite one being unbroken.

DESCRIPTIONS OF SPECIMENS IN PLATE XXV.

From Deposit B. Depth from 13 *to* 18 *inches. Both figured* $\frac{7}{8}$*-lineal size.*

Nos. 1 and 2. Tabular flint blanks, respectively $\frac{3}{4}$-inch and $\frac{1}{2}$-inch in thickness, and suggesting in shape large javelin-heads. Both faces of each are still covered with their original crust.

HIGHFIELD SITE. PLATE XXV.



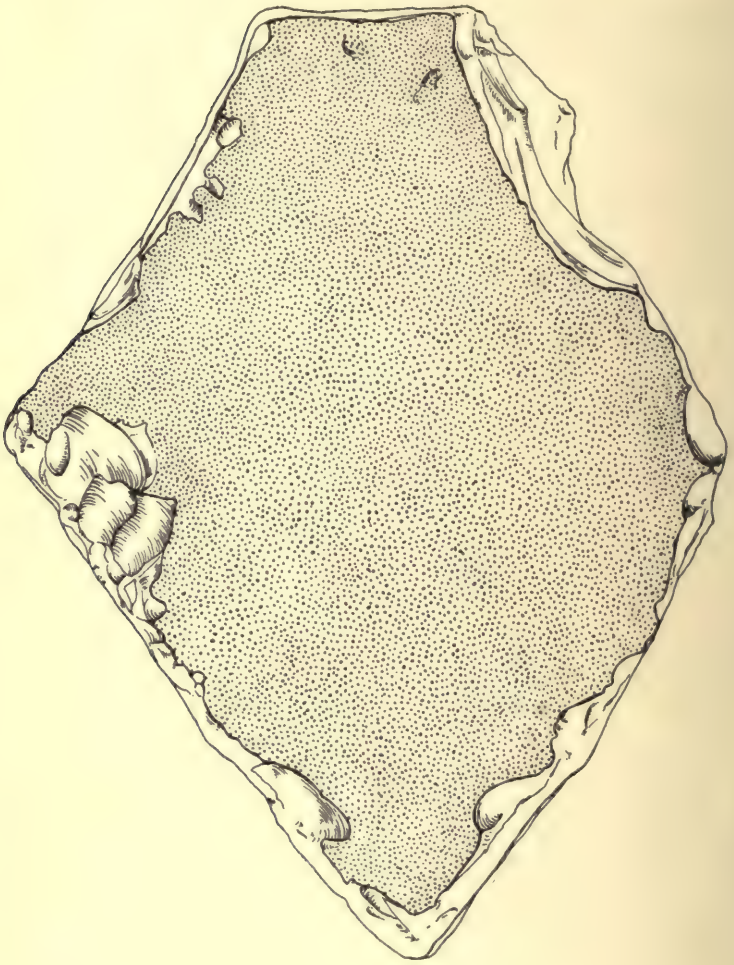
1

2

Gertrude M. Chard. Del.

For descriptions, see page 60.

HIGHFIELD SITE. PLATE XXVI.



1

Gertrude M. Chard. D.

For descriptions, see page 63.

HIGHFIELD SITE.

DESCRIPTION OF SPECIMEN IN PLATE XXVI.

From Deposit B. Depth from 13 *to* 18 *inches. Figured* $\frac{1}{3}$*-lineal size.*

No. 1. A blank of tabular flint, $1\frac{1}{4}$ inches thick, with the original crust of both faces practically intact. This, like Nos. 1 and 2, Plate XXV, is curiously suggestive of a large javelin-head in shape.

DESCRIPTIONS OF SPECIMENS IN PLATE XXVII.

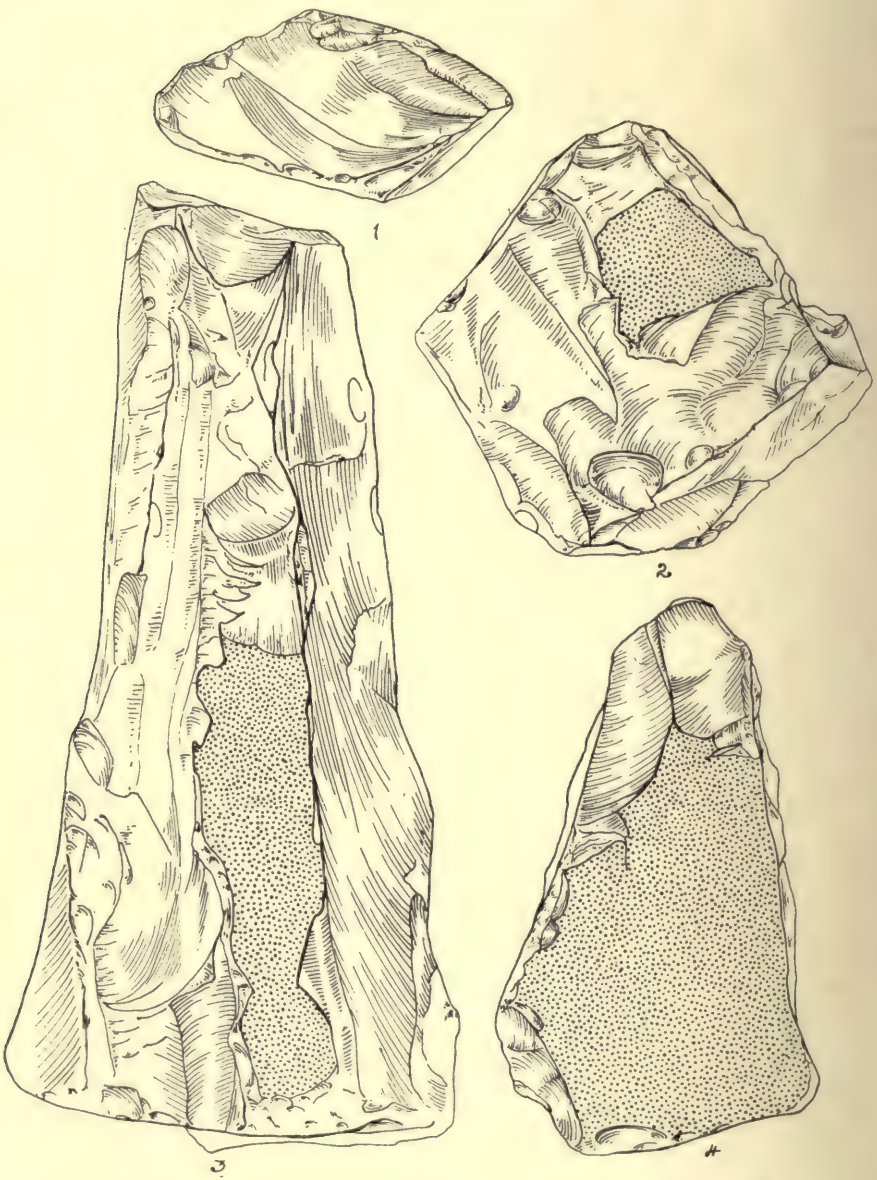
From Deposit B and surface of Deposit C. Depth from 13 *to* 20 *inches. All figured* $\frac{5}{6}$*-lineal size.*

No. 1. A small blank, $\frac{1}{4}$-inch thick, and chipped completely over both faces.

Nos. 2 and 3. Typical tabular flint blanks, respectively 1 inch and $1\frac{1}{4}$ inches in thickness. One face of each has been chipped nearly all over, while the opposite face in either case has its original crust intact.

No. 4. A characteristic, trapezium-shaped blank of tabular flint, $\frac{7}{10}$-inch in thickness. This specimen has been chipped on both faces at its pointed end, but still retains most of its original crust.

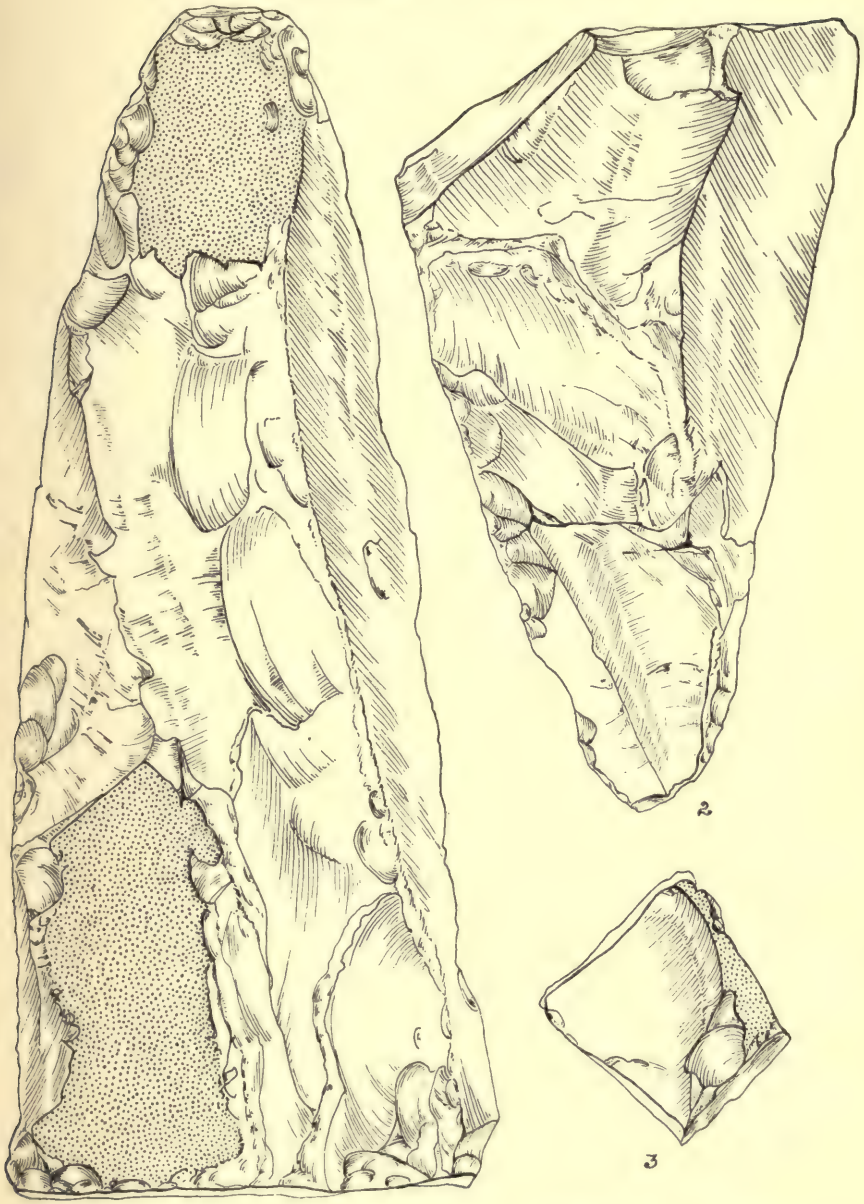
HIGHFIELD SITE. PLATE XXVII.



Gertrude M. Chard. Del.

For descriptions, see page 63.

HIGHFIELD SITE. PLATE XXVIII.



Gertrude M. Chard, Del.

For descriptions, see page 66.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXVIII.

From Deposit B and surface of Deposit C. Depth from 13 to 20 inches. All figured $\frac{1}{8}$-lineal size.

No. 1. A typical, geometrically formed blank of tabular flint, 1 inch thick. It is completely chipped over one face, and partly over the other.

Nos. 2 and 3, respectively $\frac{7}{10}$-inch and $1\frac{1}{2}$ inches in thickness, are characteristic trapezium-formed blanks of tabular flint. No. 2 still retains its original crust on one face, while No. 3 has been trimmed all over one face and practically over the whole of the other.

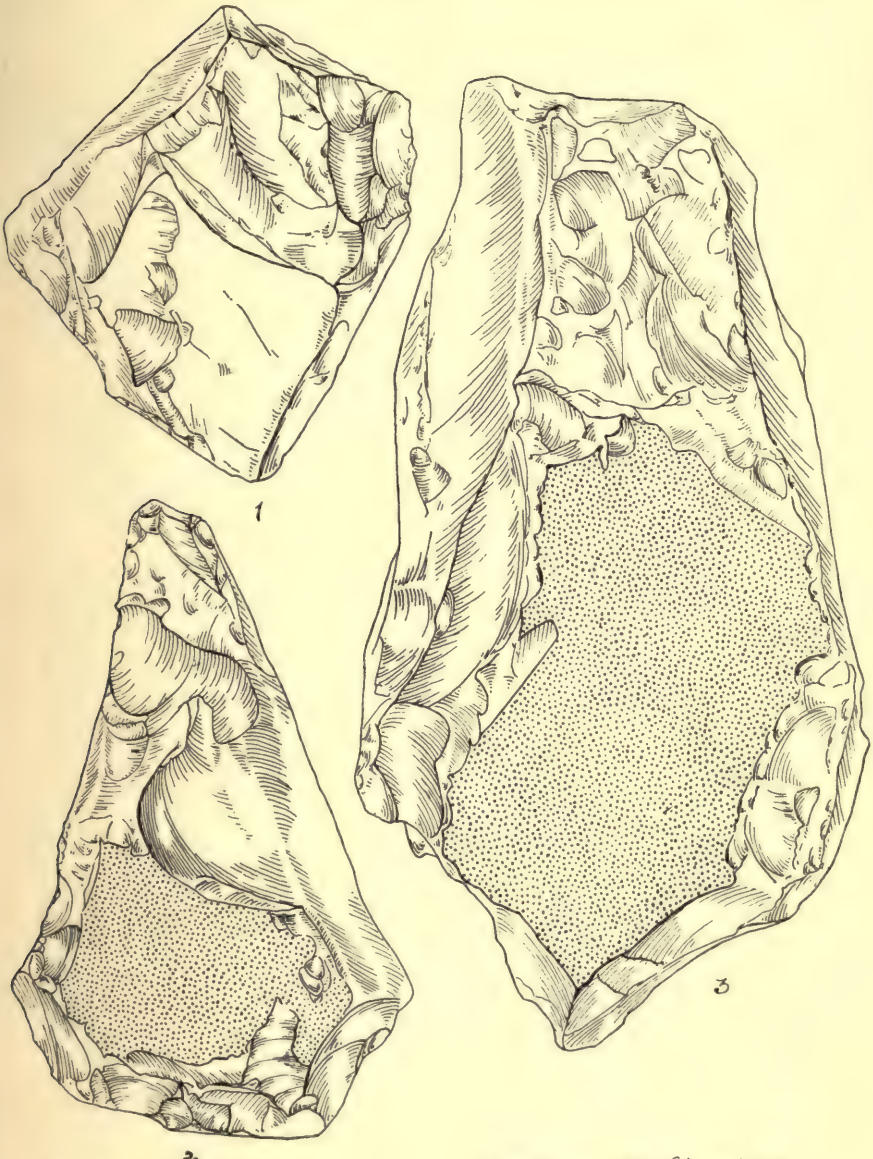
DESCRIPTIONS OF SPECIMENS IN PLATE XXIX.

From Deposit B and surface of Deposit C. Depth from 13 to 20 inches. All figured $\frac{5}{6}$-lineal size.

No. 1. A typical, trapezium-formed, tabular flint blank, 1 inch in thickness. One of its faces is chipped all over, while the other is covered with the original crust.

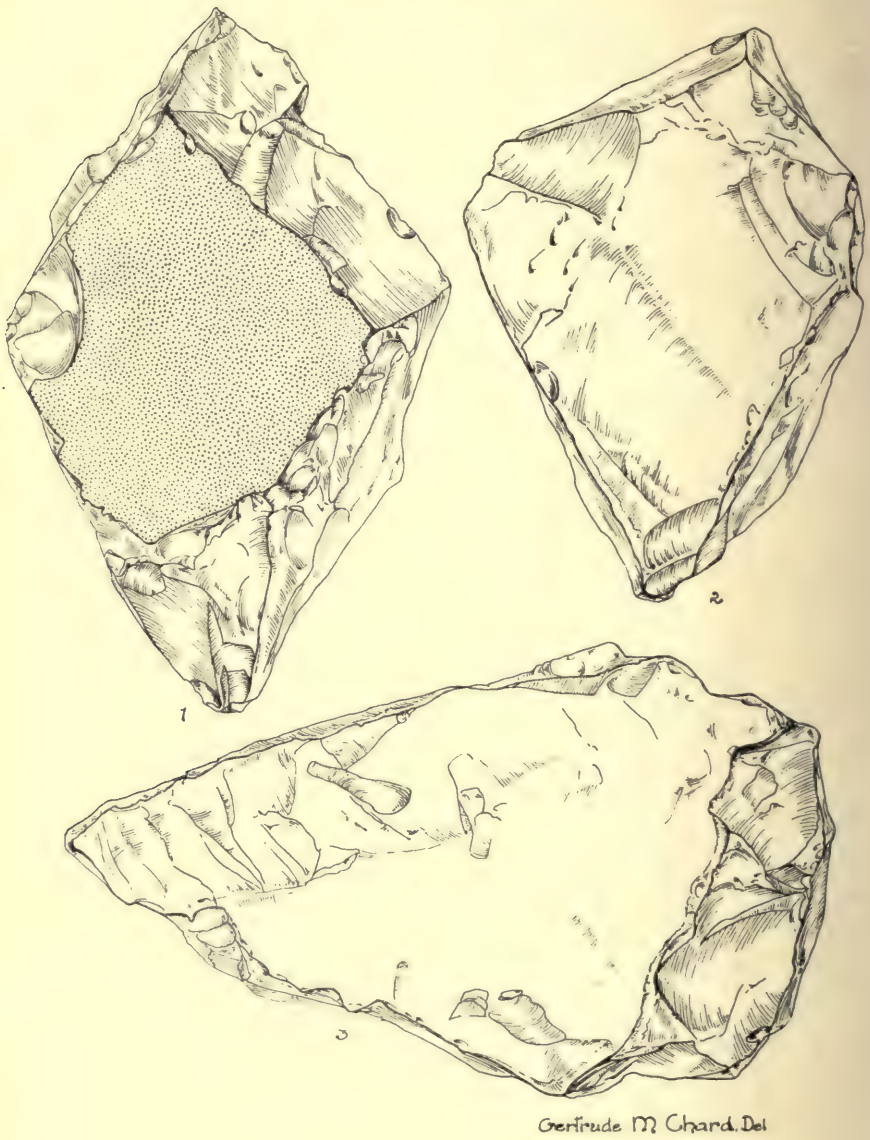
Nos. 2 and 3. Characteristic blanks of tabular flint, 1 inch thick. More than half of one face of each has been neatly chipped, the crust of the other face in either case being intact.

HIGHFIELD SITE. PLATE XXIX.



For descriptions, see page 66.

HIGHFIELD SITE. PLATE XXX.



For descriptions, see page 69.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXX.

From Deposit B and surface of Deposit C. Depth from 13 *to* 20 *inches. All figured* $\frac{2}{3}$*-lineal size.*

No. 1. A typical, rhomboidal blank, $1\frac{1}{2}$ inches thick, with bevelled edges. Chipping has been commenced at one of the points, but otherwise the faces are both covered with the original crust of the flint.

Nos. 2 and 3. Characteristic, geometrically formed blanks of tabular flint, $1\frac{1}{4}$ inches in thickness, and chipped over the whole of one face of each, the other in both specimens consisting of unbroken crust.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXI.

From Deposit B and surface of Deposit C. Depth from 13 *to* 20 *inches. All figured* $\frac{7}{9}$*-lineal size.*

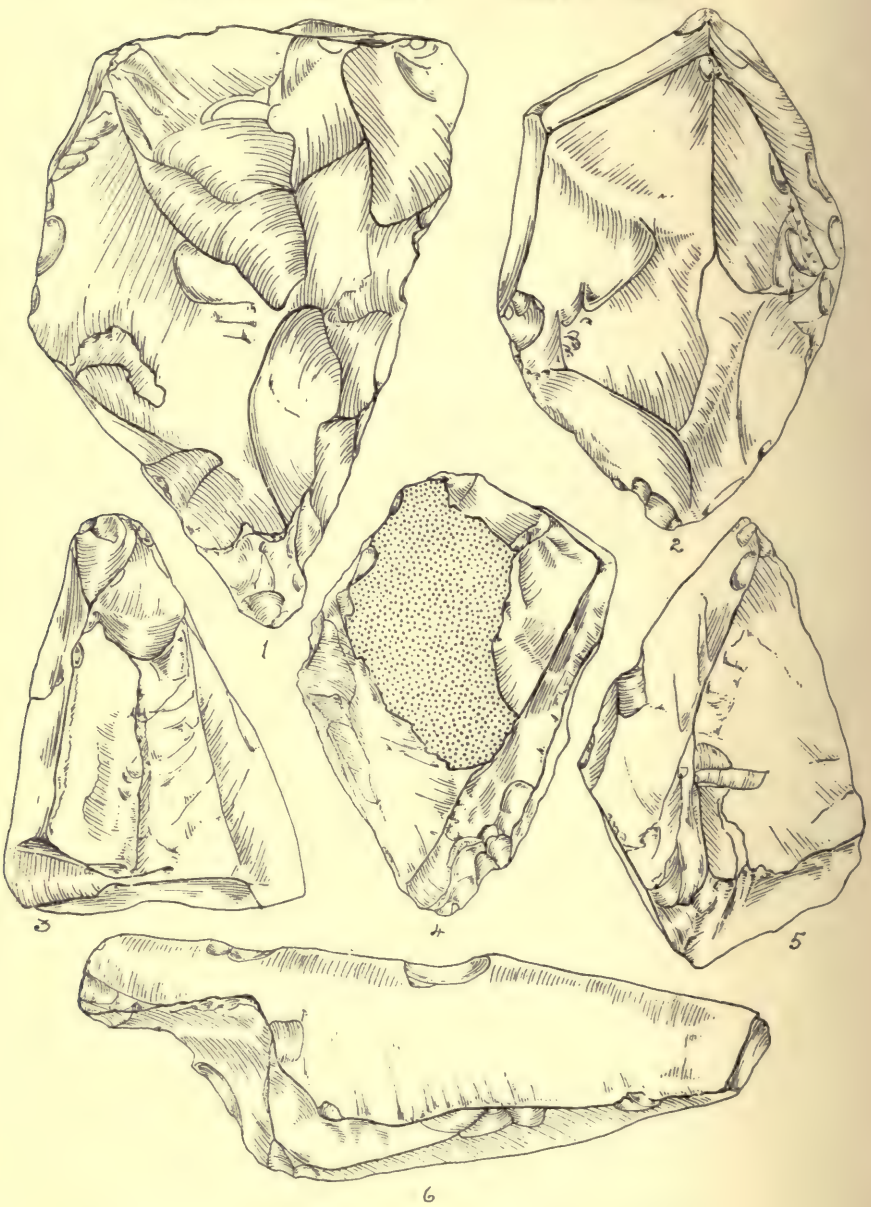
No. 1. A typical, trapezium-formed blank, 1 inch thick, and neatly chipped over the whole of both faces.

Nos. 2, 3 and 5. Characteristic, geometrically shaped blanks of tabular flint, varying from $\frac{3}{4}$-inch to 1 inch in thickness, and chipped over one face in every case, the opposite face being covered with original crust.

No. 4. A tabular flint blank of type similar to No. 5, but with one face completely and the other partly crust-covered.

No. 5. An exceptional form of tabular flint blank, 1 inch thick, and resembling a javelin-head. One face only is chipped, the other showing a complete covering of crust.

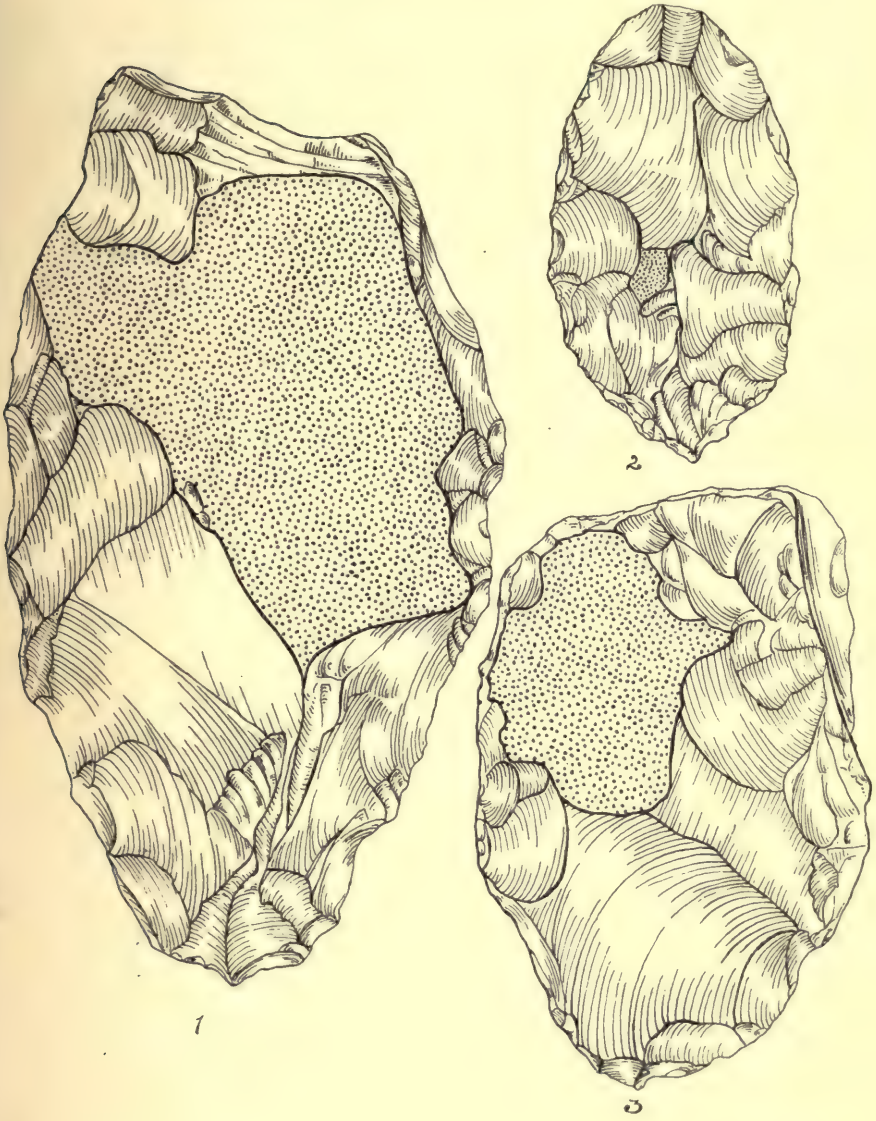
HIGHFIELD SITE. PLATE XXXI.



Gertrude M. Chard. Del.

For descriptions, see page 69.

HIGHFIELD SITE. PLATE XXXII.



Gertrude M. Chard, Del.

For descriptions, see page 72.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXII.

From Deposit B. Depth from 13 *to* 18 *inches. All figured* $\frac{5}{8}$*-lineal size.*

No. 1. A partly fashioned ovate implement, 1 inch thick. Rather more than half the surface of each face has been neatly chipped, the remainder showing the original crust of the tabular flint blank used. It will be noticed that the symmetrical shaping of the butt-end is not completed.

No. 2. A leaf-shaped blade, less than $\frac{1}{2}$-inch in thickness, and with continuously sharp edge excepting at the apparently unfinished butt. The faces are well flaked all over their surfaces, saving where, on that figured, a small portion of the original crust of the tabular flint has not yet been removed.

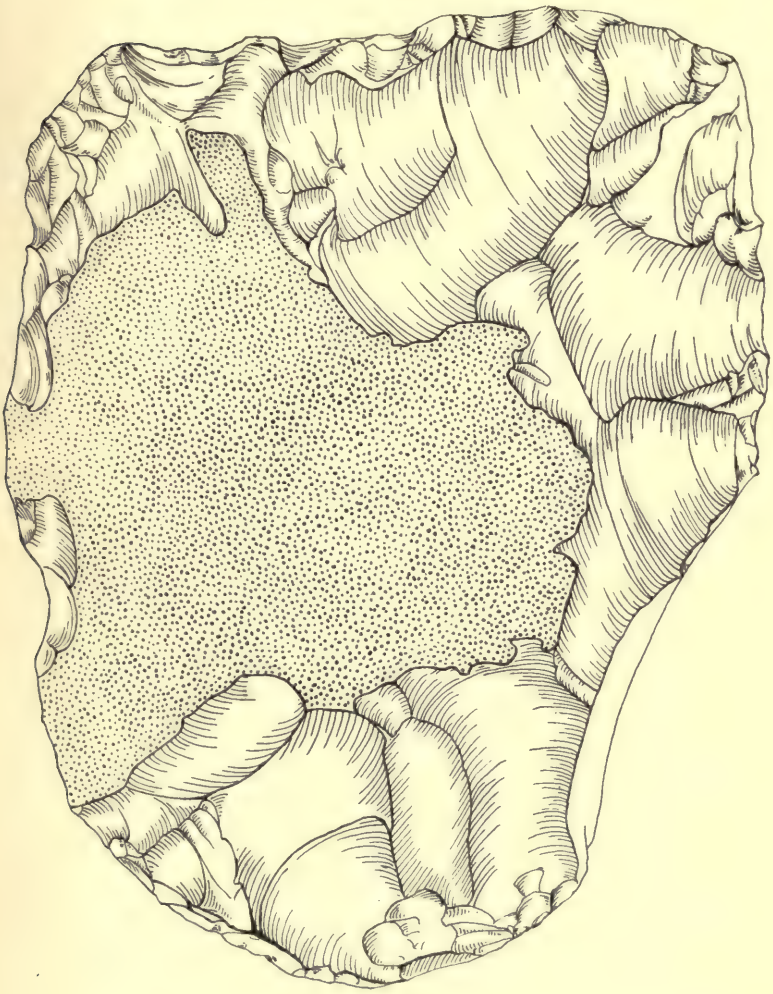
No. 3. A tabular flint blank, $1\frac{1}{4}$ inches thick, in process of being manufactured into an ovate implement. Most of the surface crust has been chipped off both faces; and the pointed end of the specimen has been flaked to symmetrical shape, the opposite or butt end of the geometrically formed blank being still practically intact.

DESCRIPTION OF SPECIMEN IN PLATE XXXIII.

From Deposit B. Depth from 13 *to* 18 *inches. Figured* $\frac{10}{13}$*-lineal size.*

No. 1. A partly made implement, of tabular flint, $1\frac{1}{4}$ inches in thickness, and still showing on both faces some of its original crust. This curious, hatchet-like type of tool is characteristic of the site, three examples of it having been found. In every case they have one truncated side at the butt end, while the cutting-edge is straight in outline and situated at the opposite end. The shape suggests that these axes were possibly intended for use with some kind of haft.

HIGHFIELD SITE. PLATE XXXIII.



1

Gertrude M. Chard. Del.

For description, see page 72.

HIGHFIELD SITE. PLATE XXXIV.

Gertrude M. Chard. Del.

For descriptions, see page 75.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXIV.

From Deposit B. Depth from 13 *to* 18 *inches. All figured* $\frac{7}{8}$*-lineal size.*

No. 1. A Celt-like implement, 1 inch thick, of pointed elliptical section and ochreous colour, and still having on one side a little of the original crust of the tabular flint from which it was made. The cutting-edge is situated at the opposite end to the truncated butt.

No. 2. A large and conveniently shaped awl in process of manufacture. The specimen is chipped over its whole surface. A smaller example of exactly similar type was also found.

No. 3. An unusual, shouldered form of tool, the cutting-edge being at the opposite end to the point.

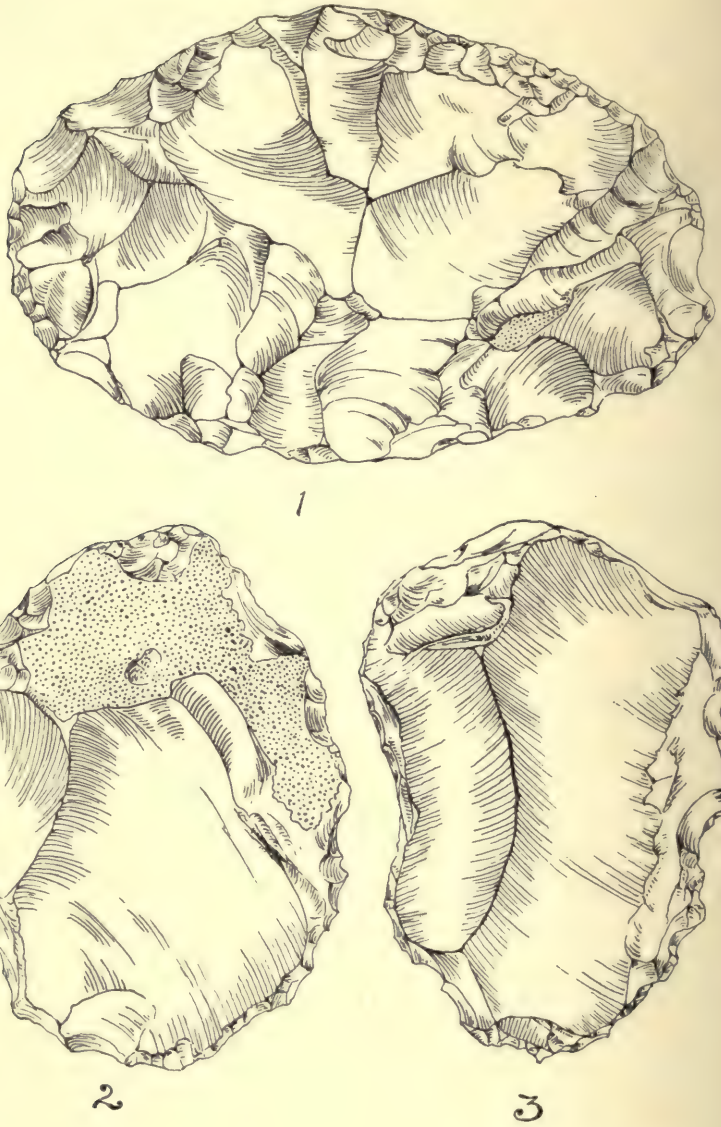
Nos. 4, 5 and 8. Typical implements made from large flakes. No. 4, which is markedly curved, is worked on one face only, and has continuously sharp edges. No. 5, a common and well marked type on the site, has been chipped on one face, and is sharp all round its edges excepting just at the butt. No. 8 is neatly chipped over one face saving where a little of the original crust is left; and has had the bulb of percussion almost removed from its other face by careful chipping. The butt is rather blunt, but otherwise the edges are very sharp.

No. 6. An unfamiliar type of hatchet-shaped implement, this is 1 inch thick, and has its principal cutting-edge placed at the opposite end to the narrowed and thickened butt, which has been skilfully chipped to a rounded shape, and not broken sharply off, as would have been the case if the specimen were the larger end of a broken, pick-shaped hand-axe. The shape seems to suggest that the tool was designed to be fitted into some form of handle.

Nos. 7 and 10. Portions of implements that were apparently broken during manufacture, the patination of each being uniform in coloration over all its surfaces.

No. 9. A particularly massive and well executed hand-axe, of pointed shape, and fashioned from nodular flint. This tool, which tapers to an exceedingly thin point, was not discovered on the flint-workshop site, but at the same level and at a spot only a short way distant. That occasional implements of this type were produced by the artificers who worked on the Floor is evident from the discovery of specimen No. 7 mentioned above.

HIGHFIELD SITE. PLATE XXXV.



For descriptions, see page 77.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXV.

From Deposit B. Depth from 13 *to* 18 *inches. All figured* $\frac{1}{10}$*-lineal size.*

No. 1. A typical, ovate implement, sensibly thinner than is usual for its size, finely flaked all over both its faces, and continuously sharp-edged all round. Two perfect implements of this character were discovered.

Nos. 2 and 3. Characteristic tools made from large flakes, and subjected to secondary chipping on one side only of each, the other showing a pronounced bulb of percussion.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXVI.

From Deposit B. Depth from 13 *to* 18 *inches. All figured* $\frac{1}{5}$*-lineal size.*

No. 1. A beautifully finished sub-triangular implement, decidedly thin for its size, and sharp all round its edges excepting at the centre of the butt-end.

No. 2. A thick and boldly flaked, ovate tool, with continuously sharp edge, and chipped over the whole of both faces.

No. 3. A typical implement, made from a large flake, and elaborately worked on one side of its curved cutting edge. Several almost similar specimens were found.

HIGHFIELD SITE. PLATE XXXVI.

For descriptions, see page 77.

HIGHFIELD SITE. PLATE XXXVII.

Gertrude M. Chard. Del.

For descriptions, see page 80.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXVII.

From Deposit B. Depth from 13 *to* 18 *inches. All figured* ¾*-lineal size.*

No. 1. A conveniently shaped and well-sharpened chisel.

No. 2. A thick, pointed flake, having on its back a large bulb of percussion.

No. 3. A typical core.

No. 4. A shouldered awl or point.

Nos. 5, 6 and 7. Characteristic flakes, chipped on one face only in every case. No. 7 is particularly finely worked at its edges.

No. 9. A typical hollow-scraper flake.

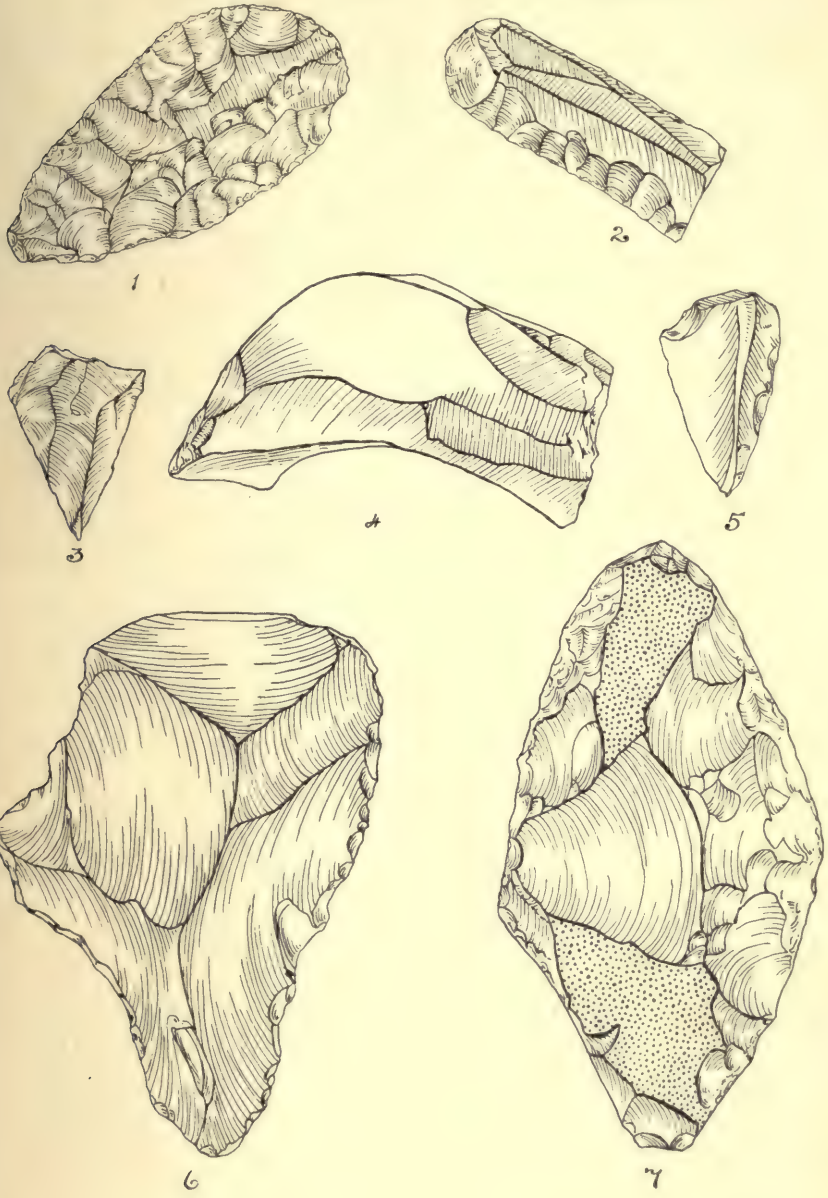
No. 8. Judged from a scientific standpoint, this specimen is the most important found on the site. Though deeply and uniformly patinated with the dull, ochreous brown colour so typical of many Palæoliths from Southampton gravels, and so unmistakable to the experienced eye, it has yet had most of its surface intentionally ground by continued rubbing on some form of grinding-stone. This is confirmed by Drs. A. Smith Woodward and G. T. Prior in a letter, dated 13th March, 1916, from the former gentleman, reading :

> "I thank you for the opportunity of seeing the accompanying flint. Both Dr. Prior and I are of opinion that at least two of the faces have been artificially rubbed."

Here and there on its surface can still be seen traces of the original crust, nearly, but not completely, obliterated by the rubbing process. Of sub-triangular section, the object has one face much broader than either of the other two faces; and it tapers at one end to a thin and almost pointed butt, the opposite end being split diagonally in such a manner as to form a bevelled cutting-edge across the widest of the three faces.

As compared with beautifully designed and polished stone axes or Celts of Neolithic origin, it is extremely crude in appearance ; but these artistic implements were probably the outcome of a long period of more primitive effort. Obvious immaturity of development in plan and execution does not affect the salient facts that (1) the specimen was discovered in close association with at least some implements of forms generally considered typical of stages of the latest Palæolithic epoch; (2) that its patina is indistinguishable from that of a very large proportion of the River Drift tools of the district; (3) that it has been artifically ground, and (4) that it is an evidently usable tool. A certain degree of crudity was to be expected in what is perhaps one of Man's earliest essays in the art of shaping and polishing stone by grinding.

HIGHFIELD SITE. PLATE XXXVIII.



Gertrude M. Chard, Del.

For descriptions, see page 82.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXVIII.

From Deposit B. Depth from 13 *to* 18 *inches. All figured* $\frac{1}{1}\frac{3}{8}$*-lineal size.*

No. 1. A leaf-shaped blade, $\frac{1}{5}$-inch thick, elaborately worked on the face figured, and neatly trimmed on the other. It is of the brown-stained, ochreous colour characteristic of Nos. 2, 4 and 7, illustrated in the same Plate, and of many other implements found on the site.

No. 2. The apparently broken end of a rather thick duck's-bill-shaped scraper, made from a flake worked on one face and its sides only.

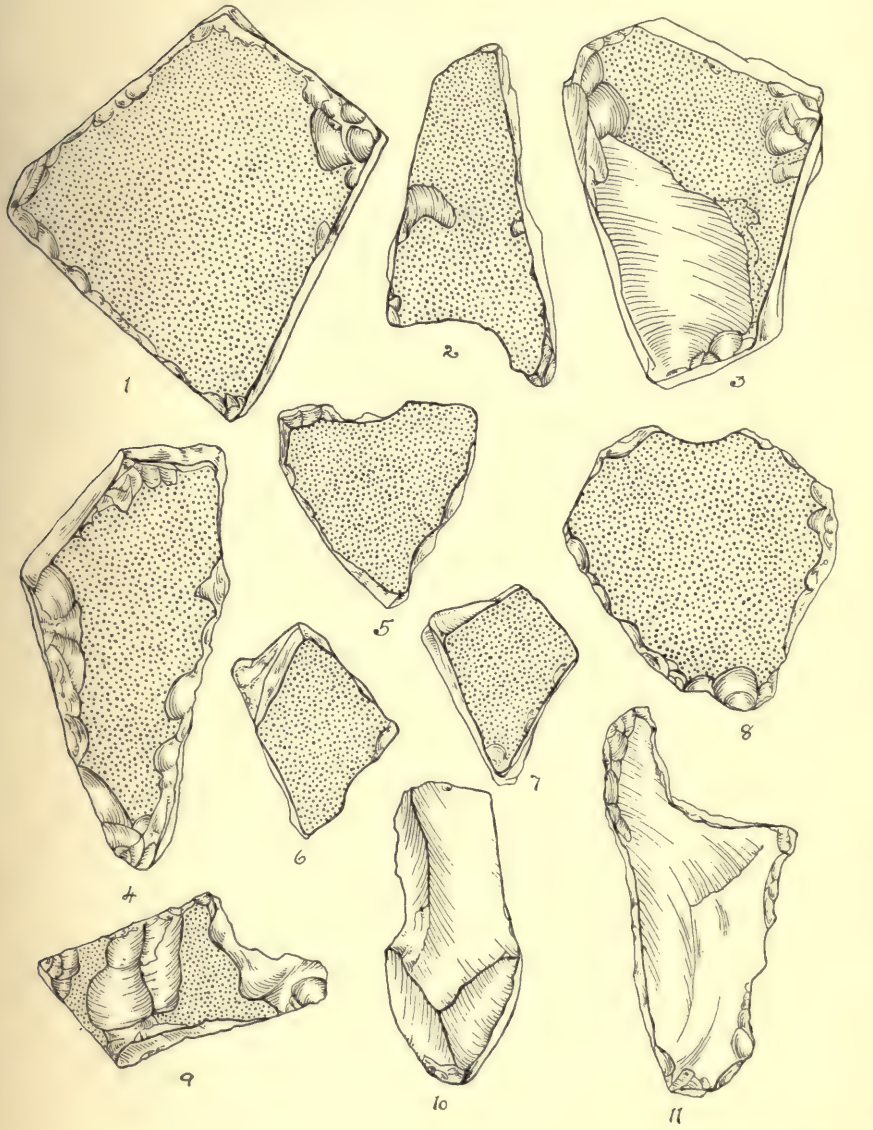
Nos. 3 and 5. Typical examples of the numerous small and more or less geometrically formed implements discovered on the Floor. The trapezium-shaped specimen No. 3 was taken from a clay matrix, the colour of its original surface being practically unaltered.

No. 4. Massively designed for its size, this curved tool has a straight scraping-edge $1\frac{1}{2}$ inches in length. The butt-end, $1\frac{1}{2}$ inches wide and $\frac{3}{4}$-inch high, is elliptical in section; and it has been boldly flaked to shouldered form, as though intended to fit into a handle.

No. 6. An exceedingly thin tool, tapering from $\frac{1}{4}$-inch to less than $\frac{1}{8}$-inch in thickness, and made from a large flake. The worked edges are continuous excepting at the butt-end, though the secondary chipping of the edge of the concave outline to be seen in the left-hand top corner of the illustration has been effected on the other and otherwise unworked face, which shows a bulb of percussion.

No. 7. A partly made, leaf-shaped blade, $\frac{3}{8}$-inch thick, chipped entirely over one face, but still showing on the other face part of the original crust of the tabular flint blank.

HIGHFIELD SITE. PLATE XXXIX.



For descriptions, see page 84.

HIGHFIELD SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XXXIX.

No. 7 from Deposit B. Depth 13 to 18 inches. Remainder from Deposit A. Depth up to 8 inches. All figured ¾-lineal size.

Nos. 1, 2, 3, 4, 5, 8 and 9. Typical blanks of tabular flint, varying from ¼-inch to ½-inch in thickness, and still having in every case both faces entirely or partly covered with the original crust of the flint. Nos. 2, 5, 8 and 9 resemble arrow-points in outline.

Nos. 6 and 7. Typical, small double-blanks. No. 7, which has the characteristic yellowish brown patina of many chipped objects found in Deposit B, is already described in detail on page 13, and is included in this Plate for purposes of comparison with the dark grey coloured, surface double-blank No. 6.

Nos. 10 and 11. These thin specimens show none of the original crust of the flint of which they are made, and are seemingly arrow-points in the making.

Nos. 11 and 2 appear to be connected stages in the manufacture of a single-barbed arrow-point.

DESCRIPTIONS OF SPECIMENS IN PLATE XL.

From Deposit A. Depth up to 8 inches. All figured ⅓-lineal size.

No. 1. A typical and long knife-flake, showing on the unfigured side a bulb of percussion.

Nos. 2, 3 and 9. Specimen flakes, with bulbs of percussion. No. 3, a shouldered form, is worked on one face only, and is characteristic of the site, two examples having been found.

No. 4. A very thin arrow-point, flaked beautifully on one face and neatly on the other.

Nos. 5 and 6. Tabular flint blanks, ⅜-inch thick, in process of being fashioned into javelin-heads or arrow-points, and each yet having some of the original crust on both of its faces. Four similar specimens were discovered.

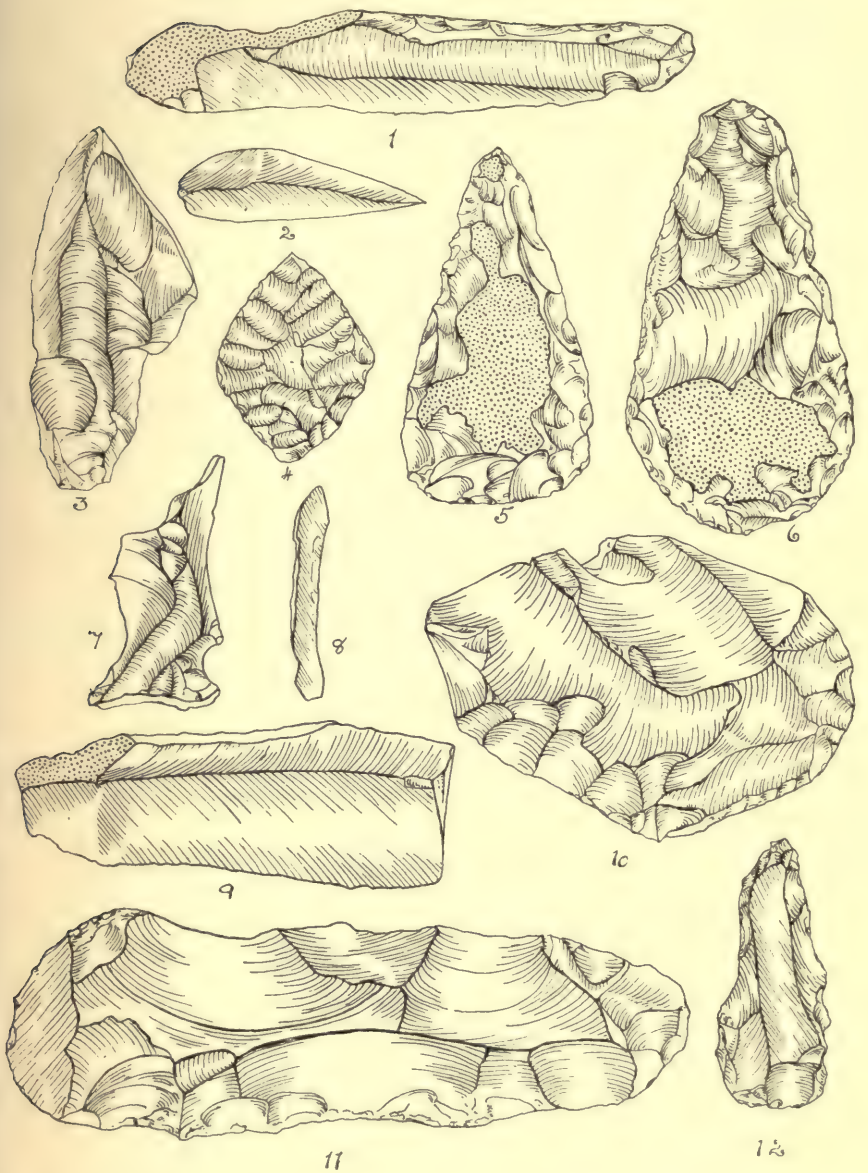
Nos. 7 and 8. Typical pointed tools.

No. 10. A large scraper, made from a flake, and worked on one face only.

No. 11. A symmetrical and well finished, chipped Celt. Two examples of this type of Celt were found.

No. 12. This specimen, which is ⅜-inch in thickness, appears to be a fabricator.

HIGHFIELD SITE. PLATE XL.



Gertrude M. Chard, Del.

For descriptions, see page 84.

A PREHISTORIC CACHE OF TABULAR FLINT IMPLEMENT-BLANKS AND TOOLS AT PORTSWOOD, near HIGHFIELD, SOUTHAMPTON.

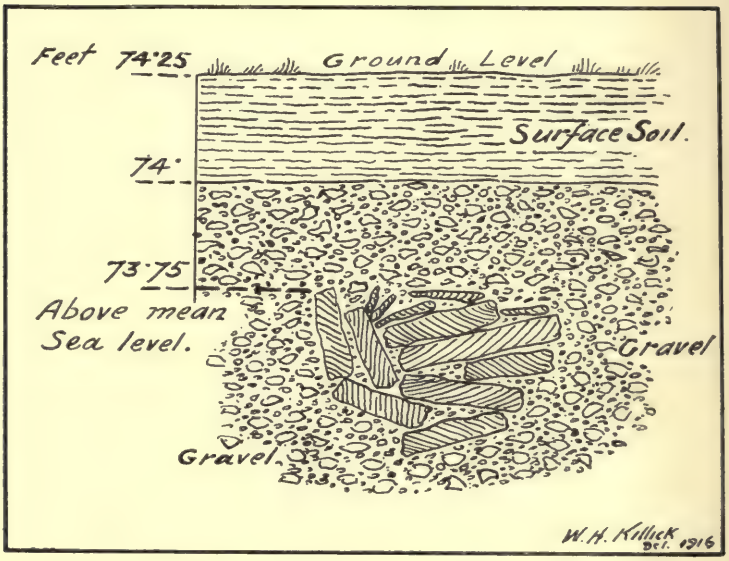


Fig. 7. SURFACE DEPOSITS OF THE PORTSWOOD CACHE SITE.

This Cache was discovered during the autumn of 1915 in the face of the gravel of a pit situated on a terrace of what was evidently the bank of the ancient River Itchen, and almost exactly half a mile South of the previously described Highfield site, from which it is possible—perhaps even probable—that the hidden objects of flint came. They comprised 15 geometrically formed blanks of tabular flint and 8 finished tools, mostly large scrapers : and lay all together, as shown in Fig. 7, the

PORTSWOOD CACHE SITE. PLATE XLI.

Gertrude M. Chard, Del.

For descriptions, see page 88.

uppermost being only 3 inches deep in the gravel. The unusual method of their deposition and the fact that their edges were as sharp as when they were first chipped, justify the belief that they were purposely hidden by some prehistoric Man who, at the time, intended to return later and disinter them. The colour of the patina of their chipped surfaces—sepia overlaid in places with white—is both exceptional and remarkably distinctive.

PORTSWOOD CACHE SITE.

DESCRIPTIONS OF SPECIMENS IN PLATE XLI.

From the Cache. Depth 6 to 11 inches. All figured ⅛-lineal size.

Nos. 1, 2 and 3. Typical, geometrically shaped blanks of tabular flint, 1 inch in thickness. No. 1 has been described in detail on page 12. The two faces of No. 2 are still covered with the original crust. No. 3 is crusted over one face and partly over the other, upon which surface chipping has been commenced.

No. 4. A typical scraper, made from a flake, and still showing on one face a little of the original crust of the tabular flint.

GENERAL CONCLUSION

FROM THE BRAMBRIDGE AND HIGHFIELD SITES.

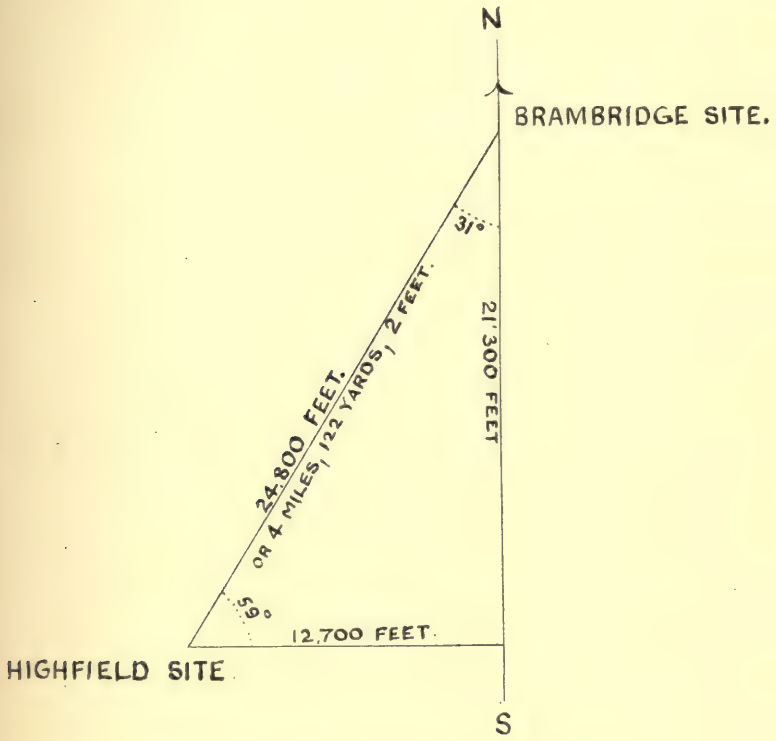


Fig. 8. RELATIVE SITUATION OF SITES.
Kindly drawn by Mr. S. J. Gooch.

The flint implements from both sites show progressive manipulative skill on the parts of their makers; and appear to form a more or less graduated scale of advancing culture. They include in either case types commonly assigned to Palæolithic epochs, in addition to others—especially at Brambridge—generally regarded as characteristic of Neolithic

work. This statement must be understood to refer only to obviously Palæolithic hand-axes (*coups-de-poing*) and to equally evidently Neolithic arrow-points or polished Celts. As illustrating the difficulties attendant upon chronologically classifying from their appearance some types of implements found near the surface, it may be mentioned that the blade numbered 1 in Plate XXXVIII was examined on consecutive days by two different and eminent archæologists, both of admittedly profound erudition in that branch of the science which treats of prehistoric Man's implements. One of these gentlemen allotted the object without hesitation to a definite stage of the Palæolithic Cave Period, while the other, with equal conviction, identified it as a fine Neolithic arrow-point with double patination.

Some of the tools are distinguished by exceptional excellence of workmanship, while the partly made ones illustrate various stages of manufacture from the geometrically formed blanks of tabular flint to completed tools. Thousands of representative specimens can be seen at the County Historical and Antiquarian Museum at Tudor House, Southampton.

Contiguity of prehistoric implements, even though they apparently exhibit marked progression in mechanical dexterity, does not necessarily imply continuity of residence by Man in the locality disclosing them: but to the writer it would seem not unreasonable to infer that both the Brambridge and Highfield sites must have been occupied without interruption of very extended duration from Palæolithic to Neolithic times.

EXPLANATORY NOTES.

By Dr. ROBERT MUNRO, M.A., M.D., LL.D.

In compliance with your wish to have my opinion on the discoveries at Southampton, as set forth in the enclosed proofs of your Report, I submit the following notes :

The two well defined inhabited sites at Brambridge and Highfield, described in this brochure as early workshops for the manufacture of flint implements, are of more than usual interest to archæologists on account of the novelty of the facts brought to light, together with the contradictory opinions held with regard to the so-called tabular flint blanks. Hence the safest policy at the present stage of the inquiry would be to place a carefully drawn up report of the investigations in a public museum alongside of a typical collection of all the artefacts—true and false—and await the illuminating effect of further discoveries. Meantime no harm can be done to archæological science by giving expression to a few explanatory remarks on these unique finds, with the view of helping the final solution of their *raison d'être*.

It may be noted that both the working floors were virtually on the surface of the river-drift of the Itchen, but beneath a superficial deposit which has accumulated subsequently. The Brambridge site was only 6 feet above the present level of the river. The time the Itchen has taken to lower its bed to that extent represents the maximum age that can be assigned to the workshop—for the Itchen must have retired from the site before Man began his operations, but how long afterwards he did so there is no evidence to show. On the other hand the river-drift gravel belongs to Palæolithic deposits (probably of a late period), and contains typical Palæoliths, presumably such, for example, as that represented in Plate XXXIV, No. 9 : but these implements have no chronological relationship with the workshop remains.

The group of pits, containing flint-chippings, unfinished or

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broken implements and other waste material, were not dwelling-huts, but shelters for the men while at work, for it is now well known that in the primitive dwellings of early Neolithic times there were two kinds of huts in use—one for sleeping and one for cooking.

The Highfield site and artefacts, though 90 feet above the mean level of the tidal river, evidently belong to the same chronological horizon as those of Brambridge. *That the geometrically shaped tabular flint blanks found sometimes in assorted little heaps were collected and partly trimmed for the purpose of being subsequently manufactured into finished tools and implements of various kinds is a suggestion that still holds the field. Nor is it wide of the mark to regard it as disclosing an early application of the principle of the division of labour.**

The objects showing workmanship were not water-worn, being almost invariably found either in the pit-shelters or in the subsoil over the Palæolithic gravels. *They consist of an assortment of artefacts resembling in form the implements peculiar to the Stone Age industry of all periods. Such collections are to be found only in the Transition period between Palæolithic and Neolithic civilizations. Hence they fall into line with a number of prehistoric remains of Man's handiwork, such as have been found in the flint-mining galleries in Cissbury Camp, the Oban Caves, the Shell Mounds of Oronsay, the raised beaches of the Forth Valley and of the Larne, submerged forests, etc.** Many typical stations of this period have been found on the Continent, of which the Danish Kjökkenmöddings and the hut-settlement at Campigny, in France, are good examples. The submergence of the Southern portion of England in post-glacial times has probably deprived us of much similar evidential material in that locality.

ROBERT MUNRO.

Elmbank,
Largs.
April 5th, 1916.

*The italicization of these passages in Dr. Munro's notes is mine.—R.E.N.

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